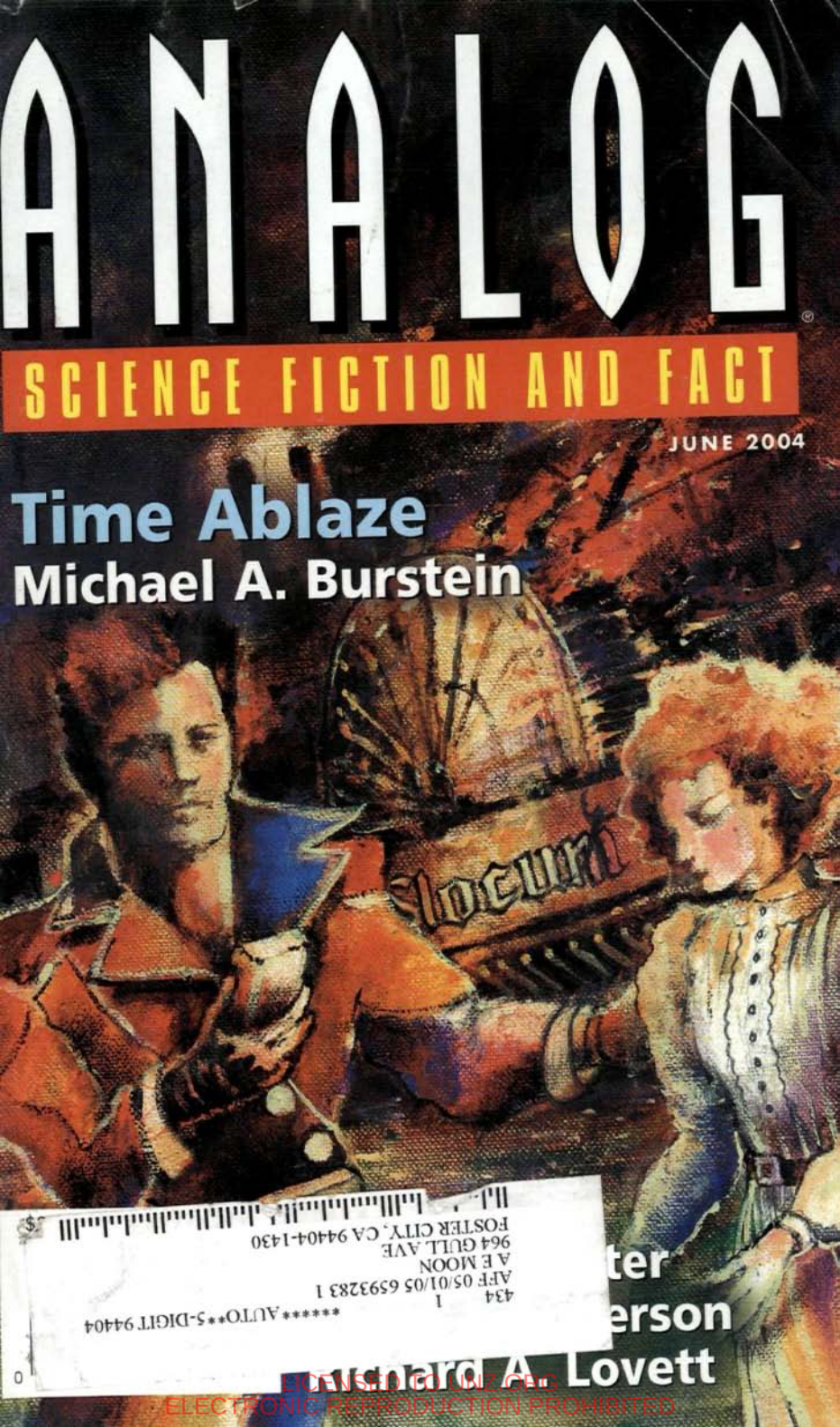
ANALOG

SCIENCE FICTION AND FACT

JUNE 2004

Time Ablaze
Michael A. Burstein



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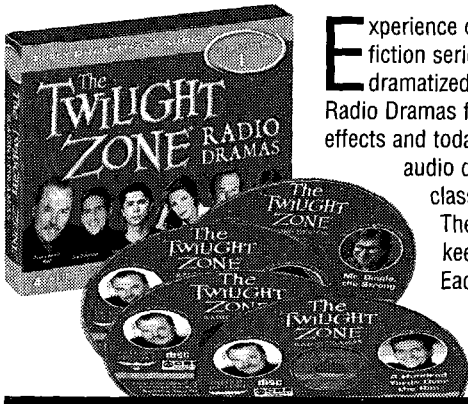

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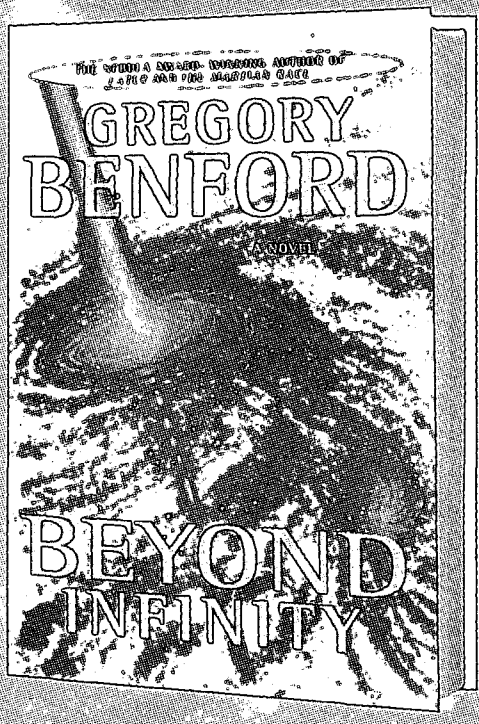

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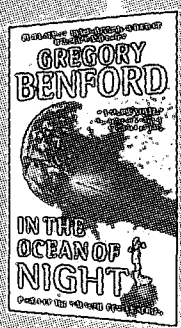

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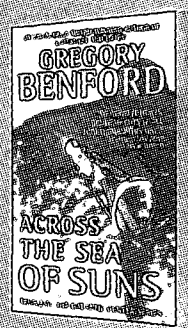

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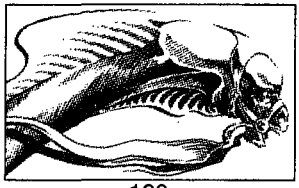

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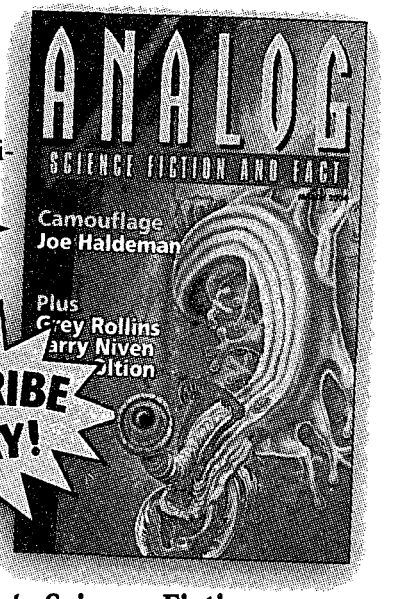

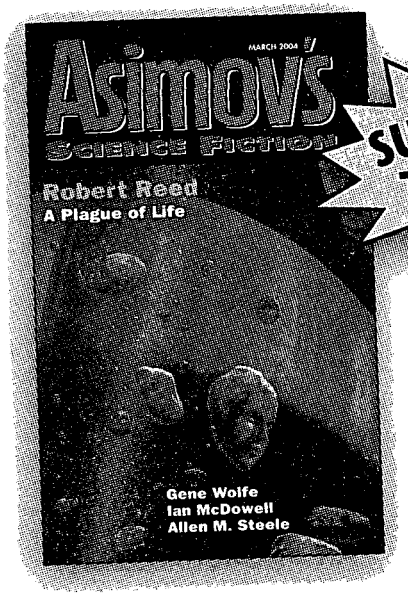

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EDITORIAL Stanley Schmidt

WHO NEEDS COMPANY?

They're at it again.

In several recent issues of *Analog*, various writers have taken new looks at the old question of how common intelligence and technologically advanced civilizations are likely to be in our galaxy. Robert Zubrin (April 2002) argued cogently that they're probably quite abundant, and so close together that even though we have no generally accepted evidence of contact so far, that, too, is pretty much inevitable and likely to lead to interstellar civilizations. Ben Bova (April 2003) countered with new astronomical and biological findings and speculations suggesting that intelligence and high technology are much rarer than many had supposed, going so far as to propose that we are the only game in town. In that same issue, I suggested that the truth more likely lies somewhere along the broad spectrum between those two extremes. Jeffery D. Kooistra (November 2003) objected that Bova ignored a whole category of potential evidence in the form of UFO reports that have some credibility and have not been explained by other means. In this issue's "Brass Tacks," Bova responds by criticizing the quality of those reports as scientific evidence, and Kooistra (in "The Alternate View") counters with his own objections to Bova's objections.

Whew! And after all that, we still don't *know*. But in listening to all that, and participating in a couple of alien-related panels at Torcon 3, it has occurred to me that there's a related question that warrants some thought in the meantime.

Given that we're not currently in a position to give a real answer to the question of whether we're alone in the galaxy, let's turn today to the question: Does it matter?

It's pretty obvious that it could matter a lot if we came into close contact with an alien civilization at least as advanced as our own. It could enlighten us, overwhelm us, or destroy us, or any of hundreds of others of scenarios that have been explored in science fiction—or not yet imagined. On the other hand, another possibility is that they're out there but *don't* interact strongly with us, either through inability or by conscious choice for any of a wide range of imaginable reasons. In such a case, would their mere existence, or lack of it, matter to humanity?

Some have suggested that it would, psychologically if in no other way. Many writers have suggested that it would be a sad thing, perhaps a terrible one, to find beyond doubt that we're all alone. Some have imagined a deep, long-term, species-wide depression resulting from such knowledge.

But would that really happen? After all, we've spent our whole history so far—several thousand years recorded, something on the order of a million (depending on how you count) before that—not knowing whether there's anyone else remotely like us out there. In the vast majority of cases, it seems to me, we have not only not known, but

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not cared. Most people, at least until very recently, haven't given it a thought.

The one possible exception is gods, which have played a large role in the thought and behavior of many cultures; but those are a special case, not equivalent to "folks sort of like us." For one thing, they have generally been considered fundamentally *not* like us, but on a radically different level. For another, belief in them has generally been pretty much independent of physical evidence. Indeed, the faithful typically consider it a reprehensible lack of faith, and a moral failing, to demand physical evidence for their beliefs.

So let's leave gods out of the present argument, and stipulate that by aliens we mean beings enough like us that we might be able to find at least a few shared interests—things to talk about or fight over. Most people, I submit, have not given the slightest thought or feeling to whether such beings exist. If they're there and we're here, their existence or nonexistence is simply irrelevant to most of us. And that, I strongly suspect, is likely to remain so until such time, if any, as undeniable contact does occur.

It's true that a very few of us have given it a lot of thought, and that in *very* recent times—thanks largely to the space program, science fiction, and what often passes for science fiction in Hollywood and on television—the number thinking about it has been larger than ever before. But remember that most people live their lives largely by following fads. If too much time goes by without more hard evidence of real aliens, this one, too, will pass.

Furthermore, consider the past record of humanity at large in getting along with even slightly different members of our own species. Our history consists largely of a tapestry of ethnic prejudices, hereditary hatreds, and mortal battles fought over petty ideological disagreements. Many of us have great difficulty being even minimally civil with people of a different color, religion, nationality, gender, sexual orientation, or political party. How many of us would *really* enjoy trying to see eye-to-eye with somebody *really* different—or be able to handle it?

The response of some is a touching but naïve faith that beings sufficiently advanced technologically to contact or visit us would also be morally advanced and benevolent, and would want only to help us. How anyone can look at our own history and believe in such a simple correlation is beyond me, but it does happen. Some people have even turned their belief in UFOs into what amounts to a new religion, looking to vaguely imagined alien benefactors to solve for humanity problems that humanity has so far been unable to solve for itself.

Counting on that seems to me decidedly ill-advised; here, again, a deeply rooted conviction that we're responsible for our own future would probably be a

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better investment of mental and emotional energy. That said, I'll admit that I personally would find a best-case scenario a welcome and exhilarating opportunity: to swap ideas and insights with truly intelligent, peaceful beings with no further interest in our kind than doing the same with us. But I'm not holding my breath. I recognize that as a real possibility—but a very small part of the range of possibilities. Some of the others are a lot less pleasant, and if contact ever does occur, we'll need to be wary of those.

I've just been talking about the range of possibilities we might face if we do make contact with other intelligences. What if, on the other hand, we could somehow get proof that there are none—that we really are alone? Might there be real advantages to such a situation? Well, yes. It's true that we'd have to abandon dreams of enlightenment from older and wiser civilizations, or even cultural cross-fertilization with others that are more or less our equals—but neither would we have to worry about being attacked or destroyed by alien "evil empires."

And we would have all that real estate there for the taking, if we wanted to expand into it, just as in the future of Isaac Asimov's *Foundation* series. It's true that recent astronomical findings suggest that "shirt-sleeve" planets might be pretty scarce. But people have a long history of adapting themselves to hostile environments, and vice versa, and our capabilities are now greater than ever before and still growing. So the opportunities would be there, to the extent that we or our descendants are motivated to take advantage of them.

In any case, as I've already indicated, I don't see the "great loneliness" as a real threat. People are too much wrapped up in their own lives, which are generally pretty circumscribed. I don't think they're going to get very worked up about what *isn't* somewhere very far away. Or if they do, they won't stay that way very long.

Which suggests one of the most interesting long-range possibilities. What happens if there really are just a few very far-flung civilizations, so we can spend a very long time searching and not finding any? What if, after tens or hundreds or thousands of years of that, we decide there really isn't anybody else, and build that idea so deeply into our cultural mindset that it comes as a

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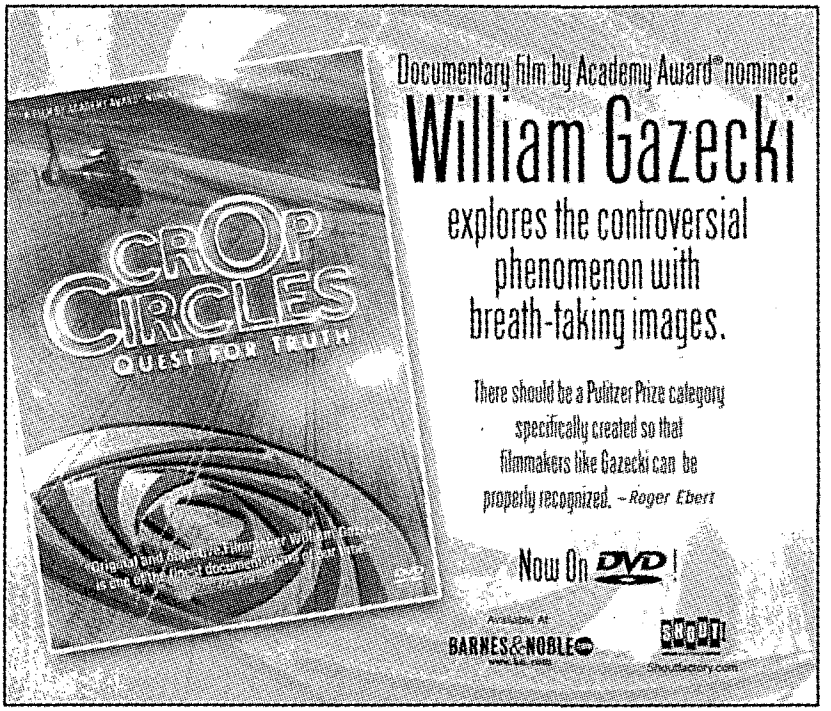
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real shock when we *do* meet somebody?

At the moment we have the advantage of having thought about a range of possibilities, so that relatively few of them would catch us completely unprepared. But in the future I'm suggesting, nobody would have thought about *any* of the possibilities. So *any* contact would come as a shock and the people experiencing it would be completely unprepared, except for their deeply ingrained conviction that they're alone and masters of the universe. How would that affect their ability to handle either the promise of equals or superiors with ideas to share, or the danger from powerful invaders? ■

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Time Ablaze

Michael A. Burstein

A good deal of this actually happened—but how much?

Adele Weber dreamed of fire and water.

In her dream, she stood on a wooden raft, which simultaneously also existed as a tenement building and a wooden maze. The fire chased her as she ran from one side of the raft to the other. The fire spat smoke at her, so she leaned out of window after window for a gasp of fresh air. The fire threw intense heat at her, so she ran through corridor after corridor, searching for cooler air.

The fire chased her, and so Adele rushed to the edge of the raft, to the front door of the building, to the end of the maze. But no freedom could be found there, because of the water. A sparkling clear blue, it surrounded her on all sides. But it never touched the fire, never even approached close enough to put the fire out. It served as a barrier, trapping her, taunting her. She knew she should remove her dress, undergarments, and stockings and dive into the water, anything to get away from the flames, but modesty and her inability to swim prevented her.

Suddenly an eight-foot-tall figure appeared: Mose the Fireman, spoken of in legend. He wore a leather firefighter's helmet as big as a barrel and a pair of humongous rubber boots, each the size of a sailboat. His coat declared that he was part of the Engine 40 unit. "Hello, little lady," he said. "How can I help you?"

"Please," Adele said. "You must save me from the fire. You must save my family."

Mose the Fireman took a swig of beer from the fifty-gallon keg he kept on his belt. The beer trickled down his thick white beard, and suddenly both beer and beard vanished. "I can't save anyone unless you save yourself."

"But—but you're Mose the Fireman. You rescue people from fires! You swam the Hudson in two strokes! You've lifted trolley cars out of your path to run to the rescue of babies!"

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"I've retired and moved to Hawaii," he replied.

Suddenly, Mose the Fireman wasn't Mose anymore, but her father. Adele watched in horror as her father called out to her in puzzlement. "Adele?"

"Father!" she shouted, but she was too late, as the flames licked closer and closer, filled with glee as they chose between immolating Adele or her father first . . .

And Adele's nightmare ended. She awoke gasping for air, as she had many times since her father's death, with her body and head wrapped snugly in her blanket.

Lucas Schmidt entered eighteen-year-old Adele Weber's life on a Sunday in May. As usual, after services at St. Mark's Evangelical Lutheran Church had ended, the congregants lingered to talk. Cigar smoke filled the air and voices speaking German filled the room, with only the occasional English word as a reminder that the community actually lived in the United States. People eagerly spread news about the everyday events of each other's lives.

Adele and her mother were no exception. They found themselves chatting with Philip Straub and his wife while the three Straub children ran around playing with other children.

Just as the Straubs took their leave, Adele and her mother were approached by Reverend George Haas, the pastor of the church, and a dark-haired stranger.

Haas adjusted his glasses and stroked his salt-and-pepper beard. "Mrs. Weber, Miss Weber," he said in English. He nodded to each one in turn. "And how are you this Sunday?"

"We are doing quite well, thank you sir," Adele replied. Although she returned the nod, her eyes were drawn to the handsome stranger, partly because of his looks but mostly because of his odd behavior. He looked distinctly uncomfortable. He kept his mouth closed, while his gaze darted around the room. Tiny beads of sweat covered his brow, and his hands repeatedly pulled at his collar and tie. Adele stifled a laugh, while waiting for the presumed introduction.

Finally, Haas said, "Allow me to introduce Mr. Lucas Schmidt."

Schmidt nodded. "A pleasure to meet you both."

"Mr. Schmidt," Adele said. "A pleasure to meet you as well. I take it you are new to New York City?"

"Yes," he said. "I am."

"Where do you come from?"

"I—I have just arrived from abroad."

"Really? I'm surprised to hear it. Your accent does not sound like that of the old country."

Schmidt blushed, reminding Adele of a schoolboy caught in a lie. "No. Um, my family emigrated to England many years ago. I grew up speaking English much more than German."

"Whereas I grew up fluent in both," Adele said.

Suddenly, Schmidt began coughing repeatedly, and Haas pounded him on the back. "Are you all right, Mr. Schmidt?"

Schmidt nodded and wiped his brow with a handkerchief. "It's all the cigar smoke. I'm not used to it."

"Don't they smoke in England?" Adele asked.

"Um. Not where I come from."

"How strange. Well, welcome to *Kleindeutschland*, Mr. Schmidt."

He nodded. "Little Germany."

There was an awkward pause, and then Haas spoke up. "Mr. Schmidt needs a place to stay. And I seem to recall that you still have that room for let."

"Well," Mrs. Weber said, "that all depends. How old are you, Mr. Schmidt? How do you earn your living?"

"I'm twenty-five, Mrs. Weber. And I work as a journalist."

"Oh," Adele said, a touch disappointed.

Haas smiled. "You'll have to forgive Miss Weber. She was just telling me how scandalous she finds the newspapers."

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Schmidt turned to look at her, and Adele shifted under his gaze. "Indeed? Are you a regular reader?"

Adele's mother spoke up again. "My daughter is quite a voracious reader."

"Yes," Adele said, slightly nettled. "I am a reader."

"And you find the newspapers scandalous?"

She sighed. "The newspapers should spend more time reporting the truth, and less time dredging up spectacles."

Schmidt shrugged. "I tend to agree with you, Miss Weber, but I must point out that newspapers need to sell copies to stay in business."

"They could sell just as many copies appealing to man's greater instincts." She sniffed. "Tell me, Mr. Schmidt, for which paper do you write?"

"I work for the *New York World*."

"Oh, Joseph Pulitzer's paper. That's not as bad as some of the others. Given that, I think you'd be acceptable."

"I am honored, Miss Weber," Schmidt said. He turned to Adele's mother. "So I've been interviewed by both mother and daughter. When will I get to meet Mr. Weber?"

Adele and her mother looked at each other. "My father passed away six years ago," Adele said after a moment.

"Oh," Schmidt replied. "I'm sorry."

Mrs. Weber sighed. "He left me to finish raising Adele on my own. But the community has been helpful. Somehow, I manage to find enough work cleaning offices or taking in laundry to help us live."

"And taking in boarders?" Schmidt asked.

Adele's mother smiled. "Yes," she said. "And taking in boarders. And you do come with good references," she added, nodding at Reverend Haas.

"Then," Schmidt said, "if it's not presumptuous of me to ask, I will need to know my new address."

"We live three blocks south of here, on Third Street." She turned to her daughter. "Adele, perhaps you can help Mr. Schmidt find his way to our apartment?"

Adele and Schmidt exchanged an awkward glance.

"Are you going somewhere, mother?" Adele asked.

"I need to stay for a while and talk with Mary Abendschein about the excursion. I have some ideas for her."

"Excursion?" Schmidt asked. "What excursion?"

"You've come to our community at a good time," Mrs. Weber said. "Next month we'll have a day to get away from the heat of the city."

"When?"

"Wednesday, June fifteenth," Reverend Haas said. "It's our annual excursion to celebrate the end of the Sunday school year. We charter a steamboat for the day, and head out to Locust Grove, a picnic ground on the northern shore of Long Island. There'll be food, fun, music, and games. You should join us if you can get away from work."

"It sounds like quite an outing," Schmidt said. "You said that you do this every year?"

Haas smiled. "This is our seventeenth one. The church started running them in 1888."

Mrs. Weber laughed. "You're being far too modest, Reverend. After all, the excursions were your idea."

"Really?" Schmidt asked.

Haas waved his hands and shook his head, as if to say that it had not been that much of an achievement. "It just seemed to me that it would be nice if we could celebrate the end of the Sunday school year with some sort of picnic. And it's so popular that many of our former congregants return from Yorkville and Brooklyn to join the festivities."

"Some even come from as far off as New Jersey," Adele said. "Such as my uncle and cousins."

"We usually get close to a thousand people," Haas added.

Schmidt whistled. "And what about

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the program book?"

Adele and her mother exchanged a puzzled glance with Haas. "We didn't mention the program book," Adele's mother said.

"Oh," Schmidt replied. "Well, perhaps I heard it from someone else. But you did mention Mary Abendschein. I would imagine she has something to do with the program book."

"Ah, yes," Haas said. "Mary is in charge of putting it together, along with many of the other details of organizing the event."

"I would like to assist her, if I could. It seems like a good way of getting to know my new community."

Haas smiled. "A capital idea. She only started last month, so I imagine her committee could use one more person."

"Perhaps Mrs. Weber and Miss Weber could introduce me to her."

"Certainly," Adele's mother said. "And then afterwards, Mr. Schmidt, let us escort you to your new home."

Lucas Schmidt did his best to prevent himself from disrupting the Weber family routine. As part of the boarding arrangement, he shared breakfasts and dinners with Adele and her mother. He would come down to the dining room right on time for the morning meal, made sure to leave before Adele's mother or Adele herself needed to start working, and he always returned by the scheduled dinner hour.

He even offered to clean the dishes, or to assist the Webers with the household laundry, much to their delight and amusement.

"Most men of my acquaintance wouldn't do such things," Adele had told him.

"Does that mean you'd rather I didn't?"

"Oh, not at all. We'll gladly take you up on your offer." She smiled. "But we'll be sure not to tell anyone, so your reputation remains unbesmirched."

Schmidt's behavior and appearance enchanted Adele so much that she and her mother decided upon a plan for Adele to spend some time alone with their new boarder. So the following week, Mrs. Weber told Mr. Schmidt that she had been hoping to take her daughter on an outing to Coney Island. "But," she said, "my health is not what it once was. Still, I hate to disappoint my daughter. Might you by chance be willing to accompany us?"

From behind the back stairs, Adele heard the whole thing. She felt a small thrill of delight when Schmidt agreed. She admittedly had been shocked when her mother had suggested a Coney Island outing; despite the amusement parks that had been there for almost ten years, it still bore a reputation for vice. Still, friends of the Webers had gone with their young children and declared that they had enjoyed the rides immensely—even if they only mentioned it quietly, and away from the pastor and other officials of the church.

"Why, of course I will," Schmidt replied.

"Thank you. I know how much Adele is looking forward to seeing Luna Park."

"Luna Park?"

"It's a new amusement park that opened just recently on the location of the old Sea Lion Park."

"Oh, yes, I remember reading something about that."

"I would have expected you to, if you work at the *World*."

That Saturday morning, as the three of them ate breakfast, Adele and her mother completed their plan. Mrs. Weber told Schmidt that she was feeling under the weather and that perhaps they ought to cancel the outing. Schmidt immediately offered to escort Adele on his own.

When Schmidt got up from the table to carry the dishes into the kitchen, Adele and her mother exchanged a wink.

Shortly after breakfast, Adele and Mr. Schmidt boarded a steamboat to Brook-

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lyn, along with hundreds of other New Yorkers eager to get away for the day. Schmidt, who had been quiet and reserved as they had walked over to the Third Street pier, became slightly agitated when he saw the steamboat. He came to a stop, forcing Adele to fight the crowd as she backed up to where he stood, going back and forth between staring at the boat and looking down at his feet.

"Mr. Schmidt? Are you coming with me or not?"

He looked up, and Adele noticed a slight reddish tinge to his cheeks. "I'm sorry, Miss Weber. I haven't been on a boat in a while."

"I thought you said you came over from Europe. What did you do, flap your arms and fly over here?"

"Something like that, yes," he said with a broad smile.

"Seriously, Mr. Schmidt."

"Seriously, I'm just a tad nervous." He paused. "I just wasn't expecting to board a steamboat, that's all. I should have known better."

"Do you get seasick, Mr. Schmidt?" Adele asked, trying to show her concern.

He chuckled. "No."

"Did you have a bad experience on a boat?" Adele asked.

Schmidt nodded. "Sort of."

"Well, relax. The ferries between Manhattan and Brooklyn run all the time. Nothing's going to happen."

He stared into her eyes for a moment. "Of course, you're right. I would have known otherwise."

"What?"

"I mean, if something had happened to any of the ferries, I would have heard."

"So are we going?"

He smiled. "Yes. Let's go."

Mr. Schmidt paid their fare and they boarded the steamboat. The trip was uneventful, and within an hour they found themselves disembarking at the steel pier at Coney Island. The beautiful blue sky above the beach and boardwalk held but a wisp of white, fluffy clouds. As they walked down the pier, Mr. Schmidt bought a copy of "Seeing Coney Island" for ten cents from a barker, and using the guidebook they found their way to Luna Park.

At the entrance stood a huge stone arch with the words "Luna Park" on a scaffold. Directly in the middle of the arch sat a giant red heart, proclaiming Luna Park "The Heart of Coney Island." Underneath that, carved in stone, were the names "Thompson & Dundy." And underneath that, of course, people wandered into and out of the amusement park.

Adele and Schmidt joined the crowd walking into the park, and were hit by a variety of sounds and smells. The music of a brass band some distance away mixed with the laughter and shouting of the crowd of people. An odor of hay and manure wafted by, and Adele jumped away as an elephant lumbered by, led by a man in turban and carrying two couples who chatted away, seemingly unaware of the spectacle they were creating. As the crowds parted, Adele had to stick close to Schmidt to avoid being jostled away from him.

"Wow," Schmidt said. Goggle-eyed, he slowly turned around and stared at everything Luna Park had to offer. Adele turned with him.

After taking in all the sights, Schmidt started pointing to the signs around the park that advertised rides and exhibitions: Ride the Trip to the Moon! Experience Dragon's Gorge Scenic Railway! Take a Trip to the North Pole! See the new Fire and Flames!

"What shall we do first?" Adele asked.

"Fire and Flames looks interesting," Schmidt said, pointing in the direction the sign indicated. "Let's go see that."

"I'm not sure," Adele said. The name Fire and Flames made her uncomfortable. She studied the other signs, and then asked, "Wouldn't you rather ride the Trip to the Moon?"

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Schmidt looked her in the eyes. "I'll make you a deal. First I'll go with you to the Moon, and then you come with me to see the Flames."

Reluctantly, Adele agreed. The two of them walked in the direction of the Moon ride, which was housed in one of the more modest buildings, past the huge Electric Tower with the sculpted dragon at the base.

They joined the long line in front of the building. Eventually, they reached the front of the line, and Schmidt handed over two dimes for their admission.

Workers ushered them and the other spectators into a cavernous room, in the middle of which sat a rounded spaceship that came to a point at one side. They were gently herded into the spaceship and asked to take seats in one of the rows. Adele took a seat next to a porthole, with Schmidt next to her.

A few seconds after the door closed, the spaceship started to rock back and forth. Looking out the portholes, Adele saw the walls vanish below, replaced by blue sky, which darkened until the only light came from pinpoint stars.

"Amazing," she said, almost breathless with wonder. Schmidt made no comment.

Very soon after, the Moon appeared as a small rock in one of the portholes. It got larger and larger, until finally it swung below, disappearing from view, and the ship stopped rocking and came to a stop with a sudden thump.

"What now?" someone asked.

"We explore the Moon," said the pilot.

He opened the door to the spaceship, and the spectators exited. No longer could they tell that they were still in the large room of the building that housed the ride. Instead, to all eyes, it appeared as if they stood on the populated surface of Earth's nearest neighbor. Everywhere they looked were caverns and grottos. Giants and midgets dressed in elaborate silver costume greeted them, along with a man on a throne who claimed to be the Man in the Moon. Dancing moon maidens gave the spectators pieces of green cheese to take back with them as souvenirs of their voyage. Eventually, the pilot ushered all the paying customers back into the spaceship, and after a slightly shorter trip, the ship "landed" and they were escorted outside into the bright sunny day on Earth.

Adele noticed that Mr. Schmidt had a bemused expression on his face. "Did you enjoy that?"

"I thought it was rather quaint," he said.

"Quaint? The Trip to the Moon is quaint?"

"Well, it's just an interesting picture of the future." He smiled. "Are you ready for Fire and Flames now?"

Adele repressed a shudder. "I'm ready."

Once again, they stood on a long line, and when they finally got to the front, Mr. Schmidt handed over two dimes for their admission to the theater. They took seats among the rows of other spectators, and waited for the curtain to lift.

Finally, once all the seats were filled, the curtain rose on a fake street that looked very much like one of the streets in Little Germany. Behind the street stood several tenement buildings, in front of which peddlers pushed their carts, children ran around, and men and women walked with purpose to their daily errands.

Suddenly smoke and flames emerged from one of the windows high up in a four-story tenement. The crowd of people, who had been moving in all directions, stopped in their tracks to stare up at the window. Then they started running around again, screaming, "Fire! Fire!"

Faces of women and children appeared at other windows near the one with the fire. Their screams rended the air as the fire spread first to one window, and then to the next, until the entire upper floor of the building burned in flame.

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It wasn't just the performers in the building and on the street who reacted. The spectators also began to jump up in their seats, screaming for someone to rescue the actors.

Just when it seemed as if there would be no hope for the unfortunate souls trapped in the building, a fire bell clanged and three fire engines sped down the makeshift street. Ten firemen grabbed hoses and began spraying water on all sides of the building, while another ten grabbed ladders and placed them along the building, so that the trapped residents could descend quickly to the safety of the street below.

A few people in the windows screamed that they couldn't reach the ladders, and another group of firemen rushed over with safety nets. They called out "Jump!" and the last people trapped in the building's top floor jumped into the nets, to thunderous applause from the audience.

The crowd roared with exhilaration, and even Mr. Schmidt joined in with great enthusiasm, but not Adele. She felt faint.

"Mr. Schmidt," she whispered.

Schmidt turned to look at her, and his mouth fell open. "My God, Miss Weber. Your face is so pale. Are you feeling okay?"

"Please get me out of here," she said.

"I don't understand."

"I thought I could take it, but I can't. I'm sorry."

"What are you talking about?"

She waved her right arm around, gesturing at the other members of the audience, who remained transfixed by the spectacle. "How can they watch this? How can they sit here unmoved by the horror?"

"It's a disaster spectacle. Entertainment."

"I can't believe it. Although I suppose if people are going to gather at a fire for entertainment, it's better they do so at a fake fire than at a real one."

Schmidt cleared a path for the two of them, escorted Adele to a bench in a far corner of the park, and brought her a cup of water. She drank deeply.

"Are you feeling better?" he asked.

Adele nodded. "I think so. I just can't believe it."

"I couldn't believe it either when I first read about it. That's why I had to see it for myself. I have something of an interest in fires." He paused. "I just didn't realize that it would affect you this way."

Adele remained silent for a few seconds. Then she cleared her throat and spoke. "My mother and I never told you how my father died."

"No," he said after a moment. "You didn't."

Adele looked away from Mr. Schmidt. She looked into the distance, where the beach melted away into the huge ocean. "He was walking home from work one evening when he heard shouts of a fire in a tenement. The firemen hadn't arrived yet, and there were women and children trapped inside. Father threw off his coat and ran into the building, to try to rescue them." She paused. "He never emerged."

"I am sorry, Miss Weber."

"Mother couldn't bear it. I had to identify the body."

"That . . . that must have been difficult for you," Schmidt said quietly, while the noise of the park still surrounded them.

Adele shook her head, trying to dismiss the memory from her mind. "Fires are far too common in our world. I was but a young twelve-year-old girl when that building he ran into went up in flames. Ever since then, I've had recurring dreams of fire."

"Ironic," Schmidt said softly.

"Why is that ironic?" Adele asked.

"Oh, um, no reason," Schmidt replied, with a wave of his hand. "I wish I could have met your father. It sounds like he was quite the heroic man."

Adele grunted. "Hm. I sometimes feel that the more heroic choice would have been to ignore the screams of strangers

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and stay alive for his family." She smiled. "Selfish of me, I suppose."

"You're entitled to such feelings. But why didn't you tell me about this when I suggested seeing Fire and Flames?"

"I—I didn't want you to be disappointed."

Schmidt took her in his arms, held her for a moment, and then released her. "Are you ready for another ride?"

Adele shook her head; the emotional roller coaster she had just gone through felt more intense than a real one would have been. "Actually, I'd like to go home."

"But we barely got here," Schmidt said.

Adele looked him in the eye. "Mr. Schmidt? I think I've had enough stimulation for one day. Please?"

He sighed. "Very well, Miss Weber."

The two of them rode the next ferry back to Manhattan.

After that day, Adele saw less and less of Mr. Schmidt. In the mornings, he would scurry off before breakfast, calling out that he would pick up a muffin or roll on his way to Newspaper Row. In the evenings, after returning to his rooms, he would go out to assist Mary Abendschein in getting shopkeepers and business owners to purchase advertisements in the excursion journal.

This bothered Adele, because even taking into account the disastrous trip to Coney Island, she had come around to her mother's way of thinking. Lucas Schmidt did seem to be a man of good prospects, and his pleasant appearance certainly made him favorable in Adele's eyes.

But his recent secrecy worried her. Was he avoiding her simply because of her behavior at Luna Park? Or was there another, more sinister reason? There were many stories of criminals who passed as decent, hard-working men. Suppose Mr. Schmidt had fooled Reverend Haas? Suppose her mother had opened their household up to a man who planned to run off with their possessions? Or worse yet, murder them in their sleep?

Adele admitted to herself that these thoughts were more flights of fancy than real concerns, but she still had a devouring curiosity about Lucas Schmidt. And so, one Monday, in the middle of the day when she had little to do, Adele walked downtown to Newspaper Row, on the eastern edge of City Hall Park.

The *New York World* was housed in its own tower that sported a tall golden dome on top, so Adele found the building with ease. She maneuvered her way through the newsboys on the street as they shouted the headlines in hopes of getting her to buy the latest edition of whatever paper they were hawking. The big news story was still the murder of Caesar Young by Nan Patterson, his mistress. Adele rolled her eyes at one of the newsboys and pressed her way into the building. She approached the reception desk where a bored-looking man sat.

"Yes?" he asked.

"I'm here to see Mr. Lucas Schmidt. He's one of your reporters."

The man checked a printed list on his desk, running his finger down it for a moment. Then he looked up at Adele. "What was the name again?"

"Schmidt. Lucas Schmidt. He would have just started working recently."

"I don't think so. This list is pretty up to date."

"But I'm sure this is where he works."

"Well," the man said suddenly, "that gentleman might know." He pointed at a man who had just gotten off an elevator, and shouted to him. "Mr. Green! Mr. Green!"

Mr. Green's head snapped around at the sound of his name, and he walked over to the desk. "Yes, John?"

"This lady could use some assistance."

He turned to Adele and shook her hand. "Martin Green, *New York World*. I'm an assistant editor here. May I help you?"

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"Adele Weber, and yes, you can, Mr. Green. I'm looking for one of your other reporters, a Mr. Lucas Schmidt."

"Sorry, no one by that name works here." He paused, then, with a little too much eagerness in his voice, said, "Is there a story you'd like to share, Miss Weber? If it's good, we can get it into the evening edition."

"Um, no. Are you sure Mr. Schmidt doesn't work here?"

"Positive. I assign the stories to all the reporters. I know everyone who writes for us." He frowned. "Why? Is this fellow pretending to be a reporter for the *World*?"

"Um, no. I must have gotten the name of the paper wrong. I'll try the others. Good day, Mr. Green."

"Um, good day, Miss Weber," he said as Adele scurried away.

Granting the possibility that she had misunderstood, Adele spent the rest of the afternoon checking at every newspaper on Newspaper Row. Not to her surprise, she discovered that not a single paper knew of a reporter named Lucas Schmidt. The only newspaper she skipped over was the *Herald*, since after checking with every other major city paper, she didn't feel that a trip uptown to Thirty-Fourth Street was necessary.

Clearly, Mr. Schmidt had lied.

So if Mr. Schmidt didn't work for the *World*, or for any other newspaper, just what did he do during the day?

The question possessed Adele, disrupting her sleep as much as her vivid dreams of fire and water. And so, on Tuesday, in the middle of the day so as not to be discovered, Adele did the unthinkable. She went up to Mr. Schmidt's room and let herself in.

She had been in the room many times before, and at first glance the room looked as pristine as always. Schmidt clearly was fastidious when it came to keeping his personal space clean. The bed was neatly made, the wooden floor was swept, and the chair and table free of dust.

However, there was something different. A book lay on the table, one that Adele knew did not belong to either her or her mother, because it had a colorful dust jacket. She pulled out the chair, sat down, picked up the book, and studied the cover.

She had seen a few books bearing dust jackets, although those jackets had been simple plain white paper covers. She had never yet seen one as elaborate and expensive-looking as the dust jacket for this book. Her eyes were first drawn to the horrific illustration of the steamboat *General Slocum* that filled the bottom half of the cover. Searing red flames burned away at the right side of the boat, with lines of thick, black smoke hovering above. On the left side of the boat, people were jumping into the water. The picture appeared so vivid to her eyes that she could almost feel the rising flames getting hotter and hotter, the smoke smothering the victims—

She shuddered and focused her eyes on the title of the book. In large letters, the book blared out its title: SHIP ABLAZE. Underneath, the subtitle explained what the book was about: "The Tragedy of the Steamboat *General Slocum*."

Finally, her eyes drifted to the smaller text above the title. She read: "On a beautiful spring morning in June 1904, 1,300 New Yorkers boarded the steamer *General Slocum* for a pleasant daylong excursion. But in thirty minutes, disaster would strike and more than one thousand would perish . . ."

Adele shuddered again, and her chest felt tight. She fought to keep her breath calm and even, while she tried to understand what she was reading.

She opened the book and noticed that the top of the inside jacket flap gave the price of the book: "US $24.95 / Canada $37.95." Her jaw dropped. Twenty-four dollars and ninety-five cents for a *book*? Even good books cost no more than a dollar or two.

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The inside front cover showed what looked like newspaper headlines, cartoons, and clippings printed on the inside front cover. She ran her fingers over two of the headlines: "Negligence Doubled the Death List" and "'Let Us Die!' Cry Women at Morgue." One of the cartoons, titled "Death's Cruel Harvest," showed the figure of Death holding a scythe and standing next to a field of fallen flowers with the heads of children. Another, "Death and Greed Partners," showed a little girl lying on a table. On her left, a man in a coat and top hat counted his money, while on her right, a figure of Death, skull plainly visible and scythe in one hand, caressed the child's forehead.

Adele felt cold and confused. What in the world was this?

She turned a few pages in and found a printed notice: "Copyright 2003 by EDWARD T. O'DONNELL." The year made no sense to her. How could she be holding a book from almost one hundred years in the future? And who was this O'Donnell, an Irishman by the sound of his name, to write a book about a tragedy that befell a German community?

A small piece of paper fell out of the book and onto the table. Adele picked it up and examined it. It bore one line: "http://www.general-slocum.com." She had no idea what it meant; "http" was clearly not a word, although she presumed she knew what the "general-slocum" part referred to.

It must be a joke, she thought. A cruel, elaborate hoax. But the book looked fine, much better than any other book she had ever seen. She started looking through the pages, faster and faster, trying to make sense of it all, when she heard the door open behind her. She quickly closed the book, placed it on the table, and stood up.

Schmidt saw her as soon as he entered. "Miss Weber! What are you doing in my room?"

Emotions of rage and embarrassment fought with each other, and rage won out.

"What am I doing here? What are *you* doing back here so early?"

"I had forgotten something in *my* room."

"Really? What exactly?"

He sighed. "I don't care for your tone, Miss Weber, nor do I care for your invasion of my privacy. I have to get back to work."

"Where? At the *New York World?*"

"Yes. Now please leave my room." He walked towards her, his eyes darting around.

Adele raised her hand in front of her, palm out. "You don't work at the *New York World*, Mr. Schmidt."

Schmidt stopped a few feet away. "How—what makes you say that?"

"I went looking for you there. They never heard of you. Nor had any other paper."

"What did you tell them?"

"Oh, nothing at all. It's not like I had found *this* yet." She picked up *Ship Ablaze*.

Schmidt sprang towards her. "Give that back to me. It's autographed."

"What?"

"I mean it's mine. Hand it over."

Adele pulled the book close to her body, and Schmidt hesitated. "Not without an explanation," she said. She waved the book around. "What is this?"

"Nothing you need to concern yourself with."

"Oh, really? It seems to be a book from the year 2003. Are you sure that it's not my concern that the current year is only 1904?"

"I—I don't know what to say."

"'*Die Wahrheit wird euch frei machen*,'" Adele said.

"Pardon?"

"John, chapter eight, verse thirty-two. 'The truth shall make you free.' Tell me the truth."

"Um. The truth." He sighed. "I guess I ought to. That book is in fact from the year 2003. It's the definitive work on the

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General Slocum tragedy."

"The *General Slocum* tragedy," she repeated.

"Yeah. There were other books written before and after, but this one is still considered the most comprehensive."

She shook her head. "I don't understand. That is, I think I understand, but I don't want to."

"A normal reaction."

"Will you tell me what's going on? Who are you?" She brandished the book even higher. "How is this possible?"

Schmidt crossed his arms. "Miss Weber, let me ask you something. Have you ever heard of an English writer, a man by the name of Herbert George Wells?"

"Yes, of course."

"Well, one of the books he's written—at least, I think he's written it by now—has to do with the concept of time travel."

Adele searched her mind, and finally came up with a title. "*The Time Machine*."

Schmidt nodded. "Yes. *The Time Machine*. A man builds a machine that allows him to travel into the past and the future. I stand before you as the final achievement of that dream. In the future, we have figured out how to visit the past." He paused. "Do you believe me?"

"It seems an impossible fantasy," Adele said. "And yet—the book—"

"*The Time Machine*?" Schmidt asked.

Adele glared at him. "No. Your book. The one I'm holding. *Ship Ablaze*."

"Oh." Schmidt's eyes moved to look at the book. "That one."

"Yes. This one. I can't fathom how or why you might have arranged to have that book printed. The only conclusion I can come to is that the book is really from the twenty-first century." She paused. "Which means that you really have come here from the future."

He sighed, a world-weary sigh that seemed out of place in a man so young. "I'm not supposed to reveal that, but sometimes it's so hard to hide the truth." He walked over to his bed and sat down upon it. "I hope you won't betray my confidence."

"So tell me about this. Have you come back to stop this horrible tragedy? Is that why you're here?"

Schmidt paled, and he didn't reply.

"What is it?" Adele asked. "What's wrong?"

"I'm afraid," he said, "that I'm not here to stop the tragedy. I can't stop it. No one can. That's not how time travel works. There are restrictions."

"Then tell me how time travel works. Perhaps I can figure out a way to get around the restrictions."

Schmidt smiled. "How might you explain the workings of a telephone to someone in 1804?"

Adele raised a finger. "Do not patronize me, Mr. Schmidt. Perhaps I wouldn't be able to understand the science or technology behind time travel. But I do understand possibilities. If I knew that a ladder had a rotten rung, and that if someone who climbed it would break the rung and fall, I would be remiss if I didn't try to save them. Why can't you do the same?"

"Miss Weber, let me try to use your ladder analogy to make it clear. Imagine time as a sort of ladder. History happens when you climb the rungs. Okay?"

She nodded. "Okay."

"Now imagine what would happen if at a particular rung, I discovered that by fiddling with it I could cause a whole second ladder to emerge. So that I can create a choice of which ladder I climb."

"That's an odd image, but I'll accept it."

"It gets odder. Now imagine that I have some sort of switch on that rung. With the switch in its original position, I can climb up the original ladder. But if I flip the switch, the new ladder appears and the old one vanishes. And thus I can only climb the second ladder."

"Okay."

"But here's my point, Miss Weber. I already came down the first ladder. If I'm

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forced to climb the second ladder, I have no idea where I'll end up."

Adele pondered the image for a moment. "Let me see if I grasp your point clearly. You are saying that if you were to prevent this disaster, you would create a change in your own history."

"That's correct."

"I still do not see what is so wrong with that."

Schmidt sighed. "If I were to change the past, that would also force a change upon the future. And I *come* from the future, Miss Weber."

"I still don't see your objection."

"Let me summarize it by what is called the Grandfather Paradox. What would happen to me if I came back in time and killed my own grandfather while he was still a baby in his crib?"

"Ah," Adele said, with sudden understanding. "You would cease to exist. But then you wouldn't exist to kill your grandfather, so he should live."

Schmidt nodded. "Precisely. And if he lives, then I would be born, allowing me to go back in time and kill him. A paradox."

"So if you were to stop this horrible disaster, the future you came from would cease to exist, and by extension, so would you."

"Exactly. Again, a paradox."

"Well, how is this paradox resolved?"

He gave Adele a firm look. "By *not* changing the past."

"But then what happens to free will? Are you not here now, and able to make decisions?"

"Well, yes. But my decisions are not ones that will disrupt the future, so no problem emerges."

Adele shook her head. "I'm sorry, Mr. Schmidt, I can't accept that. If history is as fragile as you claim, then doesn't your presence here already disrupt the future?"

Schmidt bit his lip in thought. "Well, yes and no. Some changes are more important, more vital, than others. There's a Law of Conservation of Reality that sometimes kicks in."

"A Law of Conservation of Reality?"

Schmidt stared into the distance for a moment, then said, "Let me give you an example out of history that has already happened. Suppose you went back in time and killed Napoleon in his crib. What do you think would happen?"

Adele laughed. "Many things."

"Name one."

She shrugged. "The French would never have had their empire."

He nodded. "So you say. And yet, why was it Napoleon who was responsible for the empire? Weren't there other forces, other things, at play in history? Might not someone else have stepped in and taken on Napoleon's role?"

Adele thought for a moment, then said, "I am not much of a historian, Mr. Schmidt. I suppose it's possible, but these questions rarely come to my mind."

"Forgive me, Miss Weber. I am not trying to make you feel ignorant. Rather, I am trying to point out that while parts of history are fragile, other parts are much more resilient. If I were to kill Napoleon, the Law might cause some other Frenchman to form a similar empire, and by 1904 the broad outline of history would be back on track."

"So why not attempt to save my community? Isn't history resilient enough for that?"

He sighed. "History might be resilient enough, but I'm not."

"What do you mean?"

"That Law of Conservation of Reality I mentioned before? Sometimes the Law kicks in by killing the time traveler, so changes don't happen that have to be corrected. If I were to try to change history, history might try to kill me to prevent it."

She sniffed. "That seems to me a selfish reason not to help. Do not forget that my father gave his life to rescue others."

"And you lived to regret it, did you not? Or so you said at Coney Island."

Adele glared at him. "That was differ-

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ent."

Schmidt shrugged. "Perhaps. Miss Weber, please understand. From my point of view, all this—" he waved an arm around "—is already past. My presence here doesn't change it, as my own place is in your future. As far as I am concerned, the *General Slocum* tragedy is already a part of history."

Adele tapped her foot in annoyance. "So what's the point of your being here, Mr. Schmidt? If you're not planning to save my community, my friends, my family—me—then why are you here?"

Schmidt wrung his hands. "To save something. A remnant of memory. Have you heard of Thomas Alva Edison, the inventor?"

"Of course. Who hasn't?"

"Sorry. I'm still adjusting to what people might know in 1904. If you've heard of Edison, then you've probably heard of the motion picture."

She rolled her eyes. "Motion pictures such as *The Life of an American Fireman* or *The Great Train Robbery*?"

Schmidt looked puzzled. "I've heard of the second, but not the first."

"I saw both last year at the Kinetoscope Parlor."

"The Kinetoscope Parlor?"

"On Broadway between Twenty-Sixth and Twenty-Seventh Street? It's been there since I was a child."

"I see. Well, then, this may be easier to explain than I thought. I've come back in time to make a record of the tragedy."

"You have your very own motion picture camera? You plan to preserve images of the disaster on film?"

"More than that," he said. "Much more." He stood up, walked over to his bureau, and opened the top drawer. From it he removed an odd-looking helmet with the word MEMVOX printed across the brow.

"Here," he said, handing it over.

Adele placed the book on the table. She took the helmet and turned it around in her hands, studying it. Many small metal disks were affixed to the inside.

"What do I do with this?"

"Place it over your head."

She laughed. "Are we about to engage in battle?"

He smiled. "Not unless you want to."

She carefully placed the helmet onto her head so as not to disturb her hair.

"How does that feel?" Schmidt asked, his voice sounding thick through the helmet.

"Heavy." She sniffed the air. "And it smells of oil."

"That will only last for a moment." He reached into his pocket and pulled out a small molded metal box, with knobs and buttons, which he held near her head.

"Miss Weber, are you ready?"

"For what?"

Schmidt chuckled. "I guess I'd call it an immersion into another world. It's like watching a movie, but you experience it from the inside."

Adele shrugged. "It sounds intriguing. I'm ready."

Schmidt nodded. He pushed a button on the box—

—and suddenly the room vanished. Adele found herself strapped into a leather chair in a strange room. Dials and displays of numbers danced before her face. Directly ahead and to both sides, windows showed clear blue sky and clouds, with some sort of pavement underneath.

She felt a sudden jerk of movement, and a high-pitched whine filled her ears. The room she sat in started moving forward, faster and faster. The view through the window showed faraway buildings and trees, moving past her more and more quickly, faster than she had ever gone before—

—and then suddenly the room lifted into the air.

Adele realized now that she had to be in some sort of vehicle, a flying machine. She now noticed some sort of pole, probably a steering mechanism,

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sticking out of the floor.

"Will wonders never cease?" she said aloud, although as far as she could tell there was no one around to hear her.

Very carefully, she took hold of the pole and pulled it towards her. The flying machine began to climb at an even steeper angle, and she felt herself pushed slightly into her seat. She pushed the pole forward and let it go, and the flying machine seemed to settle into a horizontal position.

"Hm," she said.

She sat and looked out the window as the flying machine took her on a journey, sometimes ascending, sometimes descending. The experience was rather similar to that of being on a roller coaster, she decided, although a lot smoother.

Until the end.

Looking out the front window, she saw huge buildings of glass and metal, towering over the ground below. The machine brought her closer and closer to the buildings, when suddenly, just when she thought she would die in a crash, the machine banked upwards. She felt herself being pushed into her seat as the vehicle climbed. The weight of her body increased, making it harder for her to breathe. She waited for relief, but the vehicle just continued to accelerate, almost straight upwards—

—when suddenly it stalled, and she found herself, and the machine, falling.

She screamed as intense fear filled her entire being. The air seemed to get thicker and hotter. The urge to get away, to flee, to survive, overwhelmed her, and she suddenly remembered that this was all unreal. She tore the helmet from her head—

—and found herself back in Mr. Schmidt's chambers.

"Merciful God," she croaked. Her heart beat so quickly she felt afraid it might burst out of her chest.

Schmidt immediately jumped to her side, and placed his hands upon her shoulders. Normally, she would have rejected the indignity, but she had no strength. "Miss Weber!" he said, his face a picture of concern. "Come, lie down upon the bed."

Gently, she made her way from the chair to the bed, gripping Schmidt's arm firmly so she wouldn't fall onto the floor. The dizziness from the experience lingered. She collapsed onto the bed, breathing heavily, and she stifled an urge to vomit.

"Adele, I'm sorry. I truly am. I forgot how vivid virtual reality can be. I didn't realize the effect that would have on you. I suppose it's as removed from motion pictures as—as I am from 1904."

"What—what in the name of our Lord was that?"

"It's called—well, it doesn't matter what it's called. The point is that you were flying."

She glared at him. "I know I was flying, you idiot. Or at least it felt like it. Was that real?"

He nodded. "Oh, yes. Quite real."

"I still want to know what it was called."

"The flying machine is called an airplane."

"An airplane," Adele repeated, as she got her breath back. "And it hasn't been invented yet. That I know for a fact."

Schmidt cleared his throat. "Actually, two brothers flew one just last December, if I remember my history."

"Last December?"

"Yes."

She shook her head. "Impossible. I would have known."

Schmidt shrugged. "Well, it's not as important as the device you just had on your head. It's called a memory player."

"A memory player," she echoed.

"Yes. It can replay the memories of one person into another person's mind."

"So that was a memory? Of someone flying an airplane?"

"Well, not quite. That was more of a training scenario. If it had been a real memory, you wouldn't have been able

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to interact with it."

Adele took a moment to assimilate this information, then said, "It's more intense than watching a movie, isn't it?"

"Yes, it is," Schmidt replied. "But I guess you learned that already."

Adele feared she knew the answer to the next question, but felt compelled to ask it anyway. "How does this device tie in with the St. Mark's excursion?"

"Well," Mr. Schmidt said. He looked around the room, never looking at Adele's face.

"Well," he said again.

"I'm waiting," Adele said.

"I'm implanting memory recorder nanobots into the minds of as many people in Little Germany as I can. Especially the women and children, as they will be the majority of the people on the steamboat."

"What was that word?"

"Um." Schmidt ran his hand through his hair, as if searching for his thoughts. "You mean nanobots?"

"Yes."

"That's a little hard to explain. It's like the lens of the camera. It would be as if the film of the camera were kept in a separate container." He lifted the little box again. "All the memories will end up in here, and then I can bring them with me back to the future."

"But how can the memories reach from people's minds into your little box?"

"Um," Schmidt said again. "That's hard to explain. I'd have to use a lot of scientific terminology that hasn't been invented yet. Could you explain to a medieval monk how a motion picture works?"

"Do not talk to me as if I were a small child," she said coldly. "I have a mind, you know." As the words came out of her mouth, a sudden, chilling thought occurred to her. "Mr. Schmidt. Did you implant one of those—those nanobots in *my* head?"

"Yours was one of the first," he replied.

She glared at him. "That is a severe invasion of my privacy. You are the absolute worst sort of voyeur."

"I would beg your pardon, Miss Weber, but that would be dishonest of me. You have to remember that from my perspective, all the members of this community are long gone. Where I come from, you're already a vic—I mean, you've already passed on." He paused. "Besides, the other side to this invasion of your privacy is the historical record. I would imagine that your people would want a record of the tragedy."

She picked the book off of the table again. "Isn't this proof that there will be a record?"

"Sort of. May I show you something?" Gently, he took the book from her hands. He flipped through the pages until he found a page close to the end of the book, and he handed the book back to her. "Read this," he said.

The page displayed three simple words on two lines: "Part Four" in smaller type, with the word "Forgetting" underneath in larger type. A picture of the steamboat's wheel appeared underneath.

Adele looked up. "Forgetting?" she asked.

"The tragedy is not remembered."

"At all?"

He cleared his throat. "It is remembered a bit, but not as much as other tragedies, some with fewer lives lost, but also ones with much, much more devastation."

"More devastation?" Adele couldn't fathom such a thing. She closed the book and checked the number on the front cover. "More than the one thousand the book claims perished?"

"One thousand twenty-one," Schmidt said.

"You didn't answer my question."

Schmidt got a far away look in his eyes. "The answer is yes. There are other disasters, much worse, in this city's history."

"Worse?"

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He nodded, and gestured with his hands as if trying to create a picture for her. "Buildings set aflame. People jumping out of windows. Great unimaginable towers crashing down. Diseases running rampant in the streets." He shuddered.

"Do you have any of those in your memory player?"

He nodded. "As regular recordings, yes. I have a few."

"I see." She paused. "Do not show me any of those. Ever."

"I would never inflict those images on anyone who didn't need to see them," he replied.

Adele glanced at the book. "Even with other disasters, how could people forget this one?"

"That's hard to explain without going into more detail about the future, but let me see." He paused in thought for a moment. "Many years ago—or many years in the future, from your perspective—when I was a student, I took a course in history at Columbia University from Professor James Patrick Shenton. He taught me two truisms about this city. The first was that New Yorkers never let principle take precedence over profit."

"And the second?"

"New Yorkers also never let memory be a hindrance."

"Explain," Adele said.

"New Yorkers have never been much for preserving the past. If a building stood in the way of progress, no matter how historic, it would be torn down."

"People's lives are not buildings, Mr. Schmidt."

"True," he replied. "But to some people those lives are valued even less." He lifted the book. "It's all in here. The *Slocum* disaster was the greatest tragedy this city had ever known, and within one hundred years, it had been completely forgotten. I want people to remember again. I want them to know the tragedy that struck."

"But it hasn't happened yet," Adele said. "Why force them to know the tragedy? Why not erase it before it ever comes to pass?"

"I've already told you. The timeline is not that resilient."

"Surely it would be resilient enough to spare the lives of my thousand countrymen! After all, if the disaster is mostly forgotten, how could preventing it possibly affect history?"

"It would affect my personal history, Miss Weber. There are ancestors of mine who will die on the *General Slocum*."

Adele had not expected that. "Really? Who? Do I know them?"

Schmidt shook his head. "I've said too much already. But it's because of my family history that I'm one of the people who remember the tragedy."

"I see. I'm sorry." Even as she spoke the words, Adele felt the absurdity of consoling Mr. Schmidt on the deaths of ancestors who hadn't even died yet. Nevertheless, it seemed to her the proper thing to say.

"Thank you," he said.

"Mr. Schmidt, why did you tell me all this?"

"You—you discovered the book. I had no choice."

She smiled at him. "Do not take me for a fool. If, as you say, there are inherent dangers in changing history, surely your showing me something of the future is a danger."

He nodded. "It is. But fortunately I can correct that."

Adele felt a chill run through her body, and it took her a moment to regain the ability to speak. "Does that mean—would you—are you planning to murder me?"

Schmidt's eyebrows shot up and his jaw dropped open. The expression on his face was so comical that Adele almost laughed. "I take it the answer is no."

"I'm surprised you would have even entertained the notion," he said.

"You're letting a thousand people go to their deaths without interference. It wasn't that much of a stretch."

He sighed. "No, I suppose not. But I

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don't have to kill you. I can use another one of my devices to make you forget our conversation ever happened."

She nodded. "Ah. So you would further violate my mind, then."

"I have no real choice," Schmidt said. From a jacket pocket he pulled out a thin metal rod. "This device is called a disorienter. It will cause you to forget our conversation. Are you ready?"

"I plead with you. Do not do this."

"I have no choice, Miss Weber. I'm sorry."

He pointed the rod directly at her and pushed a button. Adele considered jumping away, or lunging for the rod, but neither option seemed viable. Instead, she shut her eyes tight and waited for whatever effect the rod would have on her.

But nothing happened. She opened one eye and saw Mr. Schmidt standing there, dumbfounded, the rod now hanging loosely from his hand.

"Mr. Schmidt? I still remember everything."

He nodded. "I know. I couldn't do it."

Adele felt a small measure of relief. "Ah. I knew you wouldn't do that to me."

Schmidt shook his head. "No, Adele. What I meant was that your mind is too strong. There are always some people whose minds resist the disorienter. I'm afraid you're one of them."

"Oh. I had thought—never mind. So what happens now?"

"Now?" He paused, his brow furrowed. "Now I guess I have to rely upon your discretion."

"Meaning?"

"Meaning it is my turn to plead with you. Miss Weber, promise me that you will not breathe a word of this to anyone. The consequences will be disastrous if you do."

She pointed at *Ship Ablaze*. "They will be disastrous if I don't."

"Miss Weber—"

Adele stood up and took a few quick steps over to the door. Just before she left the room, she took one last look at the book. "You have kept your own counsel for quite some time, Mr. Schmidt. Expect me to do the same."

On many of the following nights, Adele Weber dreamed again of fire and water. But no longer did she float on a simple raft that was sometimes a building or a maze. Instead, she found herself on a cavernous steamboat, devoid of other people, as a fire licked away at the decks.

During the days, Lucas Schmidt kept up the pretense of going to work at the *World*. Adele knew the truth, but saw no reason to tell her mother. Schmidt somehow managed to pay his weekly rent, so what would be the point of exposing him? It wasn't as if her mother could do anything.

But there were some people who could. A few evenings later, Adele stood in front of Mr. Schmidt's door with Reverend Haas and Mary Abendschein. Haas knocked on the door, and within a moment Schmidt opened it.

"Pastor Haas. Miss Abendschein." The slightest pause. "Miss Weber. To what do I owe this visit?"

"May I speak with you, Mr. Schmidt?" Haas asked.

"Um—certainly." He moved aside and allowed the pastor and the head of the excursion committee into his room. As Adele passed by, she gave him a haughty look, to which Schmidt did not visibly react. She darted over to his desk, but nothing sat upon it.

"Well, where is it?" she asked as Haas and Abendschein found places to stand.

"Where is *what*, Miss Weber?" Haas asked.

"*He* knows," she said, pointing at Schmidt.

"I do?" Schmidt asked.

She glared at him. "The book. The memory recorder. The helmet. Any of it. All of it."

Haas removed his spectacles. "Miss Weber. Miss Abendschein and I were

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willing to come talk to Mr. Schmidt, but would you mind if I handled this my way?"

"Sorry, Reverend. By all means."

Haas nodded. "Mr. Schmidt. Adele has come to us with news of a premonition, for lack of a better word."

"Oh?"

"Yes. Now I have known Adele and her family for a long time; in fact, I christened Adele. And I know that Adele sometimes has vivid dreams regarding what may come to pass."

"Oh, does she?" Schmidt asked.

"Yes, she does. I tend not to put faith in such things myself. But once or twice—" He paused. "But that is not important now. *This* is."

"What?"

Haas put his spectacles back on. "Mr. Schmidt, this will sound ludicrous, but Miss Weber told me that you knew of a problem with the upcoming excursion to Long Island."

"Really?"

"Yes. She said that it came to her in a dream. She claimed you had in your possession a book that detailed a great disaster that would take place should we go on our excursion."

Schmidt looked at Adele, who let her gaze fall to the floor. "Indeed," he said.

"I know it sounds like nonsense, but she seemed most insistent."

"Well, I have no such book. This sounds like a dream of hers that had best stay in the dark of night."

Haas pulled at his collar and then wiped his brow with a white handkerchief. "May I have your permission to look around?"

Schmidt smiled. "This is my private room, Reverend Haas, but I wouldn't be here if not for you. Please, by all means. I shall be outside, breathing in the fresh night air."

Given the trace scent of manure that occasionally wafted through the streets, it was clear to Adele that Schmidt was being facetious, and merely giving them a chance to search his room without his presence. It also became clear to her that Reverend Haas would not be able to find the book; otherwise, Mr. Schmidt would not have been so ready to assent.

"Never mind," she said suddenly. "There's nothing here."

Haas looked at her. "Were you lying then about your dream?"

"No, Reverend. I would never lie to you. I am convinced Mr. Schmidt knows of a danger which he simply refuses to tell us. But I don't think we're going to find anything that I saw—I mean that I dreamed about—here."

Haas nodded, and turned back to Schmidt. "Mr. Schmidt—Lucas—on your honor as a new member of my congregation, please be candid. Is there any reason you know of that we should cancel the festivities of Wednesday next?"

Schmidt glanced at Adele and Haas in turn. Finally, he gave a weary shake of his head. "I know of no reason."

"Thank you, sir." Haas turned to Adele and flashed a weak smile. "Adele, I know how caught up you sometimes get in your dreams. Please rest assured that I will take all precautions to ensure a smooth and safe excursion on the *General Slocum*."

"Will you speak with the captain, at least? Have him run a fire drill?"

Haas sighed. "Captain Van Schiack has been in charge of the steamboat for thirteen years, and he has a spotless record. I am sure we will be fine."

Haas and Abendschein departed. As soon as the door closed behind them, Adele lurched at Schmidt, who jumped back. "Where is it, you cad?"

"The book?"

"Yes, the book! What have you done with it, you blackguard?"

"I sent it back to the future."

"You did what?"

"I had to. I couldn't risk the possibility that someone else might come across it. No one would believe *you*, not with your reputation for dreams. But they might believe the book. And if someone else were to see it, well, I'm not sure if

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people would be so mistrusting of Reverend Haas or Miss Abendschein."

"But all these people are going to die!"

"History can't be helped."

Adele thought of a few choice responses to that, but considered herself far too much of a lady to say them aloud. Instead, she replied, "You are wrong. History can be helped, especially if it is not yet history."

He raised a finger. "Adele—"

"Do not presume upon me, Mr. Schmidt."

"Let me try to show you the dangers in another way. Forget the *General Slocum* for the moment. Instead, answer this question: would you have me go back further into time and save your father's life?"

Adele froze. "That possibility had never occurred to me."

"Well?"

"Go back in time and save my father from dying? Of course I would."

"Are you sure? Think long and hard before answering again."

Adele thought. She had loved her father so much when she was a little girl. He had always hugged her every evening when he came home from work, and she remembered how happy he always made her just by being around. He used to take Adele and her mother to the park and playgrounds, and she remembered how safe she always felt, knowing her father was around.

And yet . . . Her father had also been an overwhelming presence in her family. Adele loved to read anything she could get her hands on, and she had had to sneak glances at books and magazines while her father was alive. For some reason, he never felt that a little girl needed to read so much, even though Adele thirsted to learn about the world. As much as she didn't want to admit it, her father's absence had made it easier for her in some ways.

In fact . . . Adele thought about how necessity had forced her mother to grow from a simple housewife into a woman who managed to keep the two of them in food and shelter. The fact was that her mother had become a much stronger, more independent woman than she had been before. Adele wouldn't want to take that away from her mother.

"Well?" Schmidt asked. "Would you change history?"

"I—I don't know. The woman I am now would probably say yes, and ask you to go back in time and save my father. But if I did allow it to happen, then the woman I am now would cease to exist. And I have no idea what my new life would be like."

"Precisely. Perhaps if your father lived, your mother would have died. Or maybe you yourself. Or perhaps you all would have ended up a happy family, right until the *Slocum* disaster. That's just it. You don't know, you can't know. History is dangerous to toy with."

"However, Mr. Schmidt, your analogy has one fatal flaw."

"Which is what?"

She took a deep breath. "If you ask me here in 1904 if I would go back in time to 1898 to change something, I hesitate. But if you ask me to prevent something that, as far as I am concerned, has not yet happened, my answer is an unequivocal yes." She paused. "I shall continue spread the word about the disaster, Mr. Schmidt. And you can't stop me."

"You already saw Reverend Haas's reaction. They'll consider you insane if you try."

"And I will consider myself evil if I do not."

Schmidt flinched. "Do not think of me as evil, Miss Weber. As I said, there are far worse tragedies in history. If we were to prevent one tragedy from occurring, morally we would have to prevent them all . . . and the universe would fall apart in a blaze of otherworldly fire."

"'*Ein Prophet gilt nirgends weniger*

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als in seinem Vaterland und bei seinen Verwandten und in seinem Hause,'" she said.

"Huh?"

"Oh, I'm sorry," she said with a sarcastic tone. "Once again, I had forgotten that you don't speak German. Mark, chapter six, verse four. 'A prophet is not without honor save in his own country.'"

"You are not a prophet, Miss Weber."

"And you are not a gentleman, Mr. Schmidt. You have shown me the future and have denied me the means of averting it. Good night. I hope you have nightmares."

The week of the excursion finally came. The Monday before, June 13, was the day of the annual parade of the *Schuetzen Bund*, a German-American shooting club, and Adele went to watch the parade with her mother, despite feeling glum. At the front of the parade marched a group of men on horses, blowing trumpets, along with men playing kettledrums. Everyone was dressed in traditional costume, from their Bavarian hats down to their lederhosen. Women wore dirndls over their blouses and long flowing skirts, with their hair braided in myriad styles. And then, following behind, thousands of German immigrants and German-Americans, many brandishing rifles.

Adele searched the crowd for Mr. Schmidt, but couldn't find him. He had chosen not to watch the parade with them, and when she pressed him, he explained that this would be his last chance to spread his nanobots before the excursion. Adele's mother took it as a rejection of Adele, which made Adele even more listless.

Adele slept badly on both Monday and Tuesday nights. And then the morning of Wednesday, June 15, 1904, arrived. Adele awoke to sunlight streaming in the windows. She breathed in the morning air and felt a breeze caress her body. The day would clearly turn out to be beautiful; she just hoped it wouldn't be tragic as well.

After she dressed, she knocked on Mr. Schmidt's door, but there was no response.

"Mr. Schmidt?" she called out. "You don't want to miss the boat."

Again, impudence won out over propriety. Adele turned the knob, opened the door, and walked into the room, only to discover that it was completely empty of Schmidt and his possessions. All of his clothing was gone, as were his futuristic devices.

After a few minutes, she sighed and went to the kitchen to prepare breakfast and lunch for herself and her mother. When her mother finally came into the dining room, she was already dressed for the excursion in her finest Sunday outfit, a blue blouse and skirt combination topped off with a broad-brimmed hat.

"What do you think, Adele?" she asked, turning around.

"You look lovely as always, mother."

"Will you be wearing a hat, Adele? If you don't, you'll catch your death of sunburn."

"I thought I would bring a parasol. I've left it near the door with the blankets and towels."

Adele's mother nodded. "Thank you for preparing the sandwiches."

"Of course." She paused. "Mother, will Mr. Schmidt be joining us? I didn't hear him in his room."

"I spoke with him last night. He told me that he would be leaving early for the boat." She flashed a knowing smile at Adele. "My guess is that he wishes to save two seats on the hurricane deck."

Despite her sour mood, Adele couldn't help but smile back. "You harbor more hopes than I do."

"Now, child, I'm sure he will forgive you for your fantasies. I wouldn't be surprised if he's planned something special for you once we reach Locust Grove."

"Or even before," Adele said under her breath.

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"What?"

"Nothing." Adele thought for a moment about whether she should tell her mother that Mr. Schmidt had cleared his room of all his possessions. She decided not to. But she did decide one last time to express her reservations about the excursion.

"Mother, I'm still not sure if we should go on the steamboat."

"This again?" She sighed. "Adele, you've already been fodder for the church gossip mill. Please stop."

"But Mother—"

"Adele, I'm going, whether you do or not. Your uncle is expecting me. And we need to leave now. The *General Slocum* is scheduled to depart from the East Third Street recreation pier at a quarter to nine."

Adele felt torn, but she wasn't about to let her mother go on the steamboat without her. At the very least, perhaps she could save the two of them.

They stepped out onto the street, which already teemed with hundreds of people dressed in their Sunday best heading towards the Third Street pier. Some walked briskly east, while others hovered in front of tenement buildings or stood at corners, waiting for friends and family.

They stopped once when Adele heard a little girl laughing behind them. She turned around and spotted Catherine Gallagher with her family.

"Well, hello, Catherine. You seem particularly happy."

"I am, I am!" the little girl shouted. "I thought I wasn't going to be able to go, but the woman at the store, she gave me a ticket!" She held her ticket up high.

"Now be careful, Catherine," the girl's mother said. "You don't want to lose the ticket, now that God has smiled upon you."

More like God has sentenced you, Adele thought.

"Have a good time," Adele's mother said to the Gallaghers. "We'll see you on the boat."

Soon enough, Adele and her mother found themselves at the gangplank, where Reverend Haas and Mary Abendschein stood welcoming parishioners and guests onto the *General Slocum*. "Ah, Miss Weber, Mrs. Weber," Haas said. "I am delighted to see you both. Particularly *you*, Miss Weber."

"Here, dears," Miss Abendschein said, pressing into their left hands copies of the *Journal for the Seventeenth Annual Excursion of St. Mark's Evan. Lutheran Church*.

"The program feels thicker than last year's," Adele's mother said.

Abendschein preened. "We managed to get over one hundred advertisements this year."

Adele flipped through the program. "A remarkable achievement."

"Thank you, Adele." She looked around. "I certainly hope you weren't too upset with how often I kept your boarder away from home."

"Miss Abendschein! Really!"

She laughed. "Relax. Your mother told me that he seemed to be courting you. I wouldn't stand in the way."

"Have you actually seen Mr. Schmidt today?" Adele asked.

"I thought I saw him boarding earlier," Reverend Haas replied. He looked directly at Adele. "I imagine he's looking forward to a day in the country as much as the rest of us."

Adele grasped the unspoken point, that Schmidt would not have boarded the *Slocum* if Adele's suspicions of disaster had any grounding to them. "Thank you, Reverend Haas."

"I'll see you on the boat."

Adele and her mother crossed the gangplank and boarded the *General Slocum*, along with many happy, laughing people. Adele noticed a deckhand clicking away on a mechanical counter as people stepped off the gangplank and onto the boat. She repressed the urge to tell him to be extra careful with his count.

"Well, dear," her mother said, "shall

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we go to the afterdeck?"

"I want to stay here and keep an eye out for Mr. Schmidt."

"He's probably already on board," her mother replied. "I want to go listen to Professor George Maurer and his band. Your uncle said he would save us some seats. But you can stay out on the main deck, if you wish."

Adele sighed. "Mother, I really do not wish to be separated."

Her mother laughed. "Child! Really. Nothing's going to happen. Okay?"

"Okay," Adele said without enthusiasm.

"Good. I'm going to the afterdeck to hear the music. You may stay here if you wish."

"I think I will, at least for the moment."

Adele waved farewell to her mother and watched the gangplank as more people came onto the boat. Although the boat was scheduled to depart at 8:45 AM, various passengers asked Reverend Haas to hold the boat for one more family member or friend, and Haas agreed. It wasn't until almost 9:45 AM, as a young girl and her brother flew down the pier, that the deckhands finally got ready to haul up the gangplank.

As Adele watched this, still straining her eyes for some sign of Mr. Schmidt, she spotted the wife of Philip Straub and her three children. An impulse made her approach them.

"Mrs. Straub."

"Adele Weber! How are you?"

"Mrs. Straub, you've always been so nice to me, I feel I must warn you." Adele paused for a moment, then said, "I've been having dreams, dark dreams of today's excursion."

Mrs. Straub's face turned pale. "So I'm not the only one," she whispered.

Adele watched as Mrs. Straub turned to a man next to her and said something. Immediately, that man grabbed his wife and five children and ran towards the gangplank. Right behind him, Straub and her three children followed. They tumbled off the boat and landed on the pier, gasping for breath.

Praise to the heavens, thought Adele. At least I've managed to save someone.

The gangplank disappeared, the crew began to cast off, shouts went up to the pilothouse, and the twin paddle wheels began to turn.

The *General Slocum* was underway.

For the next few minutes, Adele wandered the decks, looking for some sign of either Mr. Schmidt or a way off the steamboat. Children of all ages ran around, playing various games. She spotted Lillie Pfeifer, a friend who was but a year older and yet already married. Lillie and she had spent many previous excursions dancing with other teenagers on the boat, but Adele knew that things would be different today, as Lillie had to spend the day in the company of other married ladies, no matter their age. In truth, Adele felt relieved that she didn't have to fawn over Lillie and be excited for her new marriage.

Adele turned a corner to keep Lillie from spotting her, and found herself face to face with Mr. Schmidt. His shocked expression showed that he was just as surprised to see her as she was to see him. "Mr. Schmidt? What are you doing here? I thought you would be long gone by now."

"I should ask you the same question, Miss Weber. What are you doing here, knowing what you know?"

"My mother refused to heed my warnings, and I would not let her come on the excursion alone. I am hoping to save her."

"Ah." He looked down at his feet.

"Nor could I let the rest of my community go into this tragedy alone. Perhaps I could help them. What about you?" She frowned. "Didn't you plant all the recorders you needed?" she asked with coldness in her voice. "Isn't it time you went back to where you came from?"

"That's just it, Miss Weber. I'm not

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sure if I can."

"Oh? And why not?"

A few women bumped into Schmidt as they came around the corner. After a few hurried words of "Pardon me" and "Excuse me," Schmidt pulled Adele over to the railing. He leaned forward and whispered in her ear.

"I stopped the disaster."

Adele felt a lump in her throat. "What do you mean?"

"I went to the lamp room well before the fire would have started. I found a lit cigarette sitting on the floor, and I stamped it out."

"The lamp room?"

Schmidt gave her a curious look. "Just how much of the book did you manage to read?"

"Not that much."

He nodded. "Well, the fire started in the lamp room, just below the main deck. That is, it would have started there. But I put it out."

"You're not lying?"

The glum look on his face said it all. "No, I'm not. Otherwise, I wouldn't be on the boat. I'd have stayed safely away."

"What about all that warning about changing the future?"

Schmidt leaned back on the railing, and looked around. Adele followed his gaze. In one corner, a group of older women were deeply engaged in conversation. In another, a few children were playing a game of hide-and-seek.

Schmidt's eyes stopped wandering, and he looked back at Adele. "I got to know everyone," he said.

"Pardon?"

"The German-Americans of the Lower East Side. It may be a shrinking community, but it's still a vibrant one, full of life and joy. I couldn't bear to see it destroyed the way it once was."

Slowly, Adele nodded. "You came to see the world through my eyes, then."

Schmidt took a deep breath and exhaled it. "Sadly, yes. I decided it would be best if the future didn't have a tragedy to remember."

"Sadly, you say?"

"I'll get in trouble if the future finds out."

"But you changed the future."

"Not enough, apparently. I'm still here, which means my future still exists, in some form or other. That means I'll have to take responsibility for changing history." He paused. "But it's worth it all, just to see you happy."

Adele moved closer to Mr. Schmidt. She knew it would appear unseemly, but she could only think of one way to express her gratitude—

—when suddenly, she noticed a new odor mixing with that of the salt water and sea air. An odor of burning wood.

"Lucas?" she asked, sniffing the air.

Schmidt's eyes widened with horror. "I smell it too."

A young boy ran past, shouting, "The boat is on fire, the boat is on fire!"

Schmidt tugged on his watch fob, brought his pocket watch up to his face, opened the case, and glanced at the time. "I'm too late."

"What is it?"

"It's the fire. I couldn't stop it. The Law of Conservation of Reality kicked in."

"What are you saying?"

"History doesn't record exactly what started the fire. I thought it was the cigarette, but it could have been a smoldering match." He hit the railing in frustration. "Damn. I should have stayed down there, not let anyone near the lamp room."

"If the fire is starting, we must get to safety."

"Yes, but—"

A man ran past them, shouting, "Quick! Grab a life preserver! Get to the boats!"

A crowd of people began running towards the boats. Adele tried to join them, but Schmidt gripped her arm tightly. "No. It won't do us any good."

"Why not?"

"The cork in the life preservers has become cork dust. If you jumped over-

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board wearing one, you would sink like a stone."

"What about the lifeboats?"

"Held down with wire," Schmidt responded. "They'll never get one loose in time."

"You knew all this?"

"Yes, I did." He paused. "It's part of history."

She glared. "It was all in that book, wasn't it?"

He nodded. "Yes, it was."

"*Mein Gott!* My mother! I must find my mother!" She tried to pull her arm out of Schmidt's grip, but failed. "Let me go!"

"No, Adele. It's too dangerous. You'll find yourself rushing into a wall of flame."

Tears began to come to her eyes, as passengers jostled around them, running towards the lifeboats. "You must let me go save my mother!"

Schmidt grabbed her other arm and swung her around. "Adele, listen to me! We can't save everyone. It's too late. History must play itself out. But we can save ourselves, and your mother as well, if you will calm down and follow my instructions."

Adele nodded. "What do we do?"

"I'm a time traveler. I can take us out of phase with the timeline. Then I can leave you suspended outside of time while I go search for your mother."

"You intend to leave me in safety while you risk yourself to find my mother?"

"Using my time machine is the only way I can attempt to save both of you."

Adele took a deep breath. "Swear to the Lord that you are not lying to me."

"Adele, I swear to the heavens above that I am not lying. May I use my time machine to save us?"

"Do it."

Schmidt unbuttoned his jacket. Underneath he wore an odd belt with metal buttons. He took Adele's hand in his and wrapped it around his belt, making sure she had a firm grip.

"The belt is your time machine?" she asked.

"Yes. Now hold on."

He pushed a button, and the world around them seemed to fade into nonexistence.

Panic embraced the hearts and souls of the women, children, and men on board the *General Slocum*. Some people ran to find their children. Others ran for the life preservers; the few who managed to put them on and jump into the water drowned almost immediately.

People died in fire. People died in water.

And Adele Weber, floating outside of time like an insubstantial ghost, had a front-row seat for the entire disaster.

She watched as a man started swimming towards land. Three or four women—she couldn't tell because of the way they flailed about in the water—grabbed at the man, desperate for some way to stay afloat. He screamed at them and tried to push them away, but it was no use. The women grabbed onto the man, and without meaning to, dragged him under the water.

She watched as Captain Van Schiack ordered his pilot, Van Wart, to beach the wooden steamboat on North Brother Island—a full mile away, nowhere near as close as the Bronx docks or the Queens shore.

She watched as fire and smoke flew from the front of the vessel to the stern, filling the decks. The flame swept higher and higher, devouring the boat like an insatiable monster. Sparks and embers jumped onto people, who screamed as the air filled with the sickening odor of their burning, shriveling flesh.

She watched as strangers picked up children that were not their own and threw them overboard. The children shouted for their parents as they fell into the darkness of the cold water, most never to emerge.

She watched as George Heins, only one year younger than Adele, ran to

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grab a small girl, but was too late as she disappeared into a sudden wall of flame.

She watched as people crushed each other against the rails, forcing others overboard, where they quickly drowned.

She watched as Lucas Schmidt dove into and out of time, trying to locate and rescue her mother.

She watched until she could not bear to watch anymore, but her eyes refused to close, until finally, the steamboat, engulfed with fire, had made it to North Brother Island.

And then she lost consciousness.

Adele awoke on a bed in a strange room, with Schmidt sitting in a chair next to her.

"Lucas?" she called out. "Where am I?"

"I brought you to a hotel to recuperate. You've been in and out of a coma. It's an aftereffect of being outside of time for so long without a time belt to keep your quantum structure stable."

"How long have I been unconscious?"

"About two days."

She pushed herself up out of the bed. "Days?"

"It's Friday. Mid-morning." He pointed at a stack of newspapers. "I've brought you the news, if you want to know what's been going on."

"Perhaps I should just read *Ship Ablaze*," she said sarcastically.

Schmidt shrugged. "I may have changed history. The book might not be as accurate as it had been. And anyway, I don't have it here in 1904 anymore."

Adele picked up the newspapers and began rustling through them. The headlines spoke of nothing but the disaster. "499 Known To Be Dead" reported the *Herald*. "Horror in East River!" from the *Tribune*. At least Pulitzer's *World* had found something good to report: "Many Gallant Rescues of the Drowning!"

"They're reporting anywhere from five hundred to one thousand dead," Adele said.

"That always happens after a tragedy such as this one," Schmidt replied. "It'll take a while for the numbers to settle down."

"One thousand twenty-one," Adele said. "From the inside front cover of your book."

"Um, yes. Again, though, you're assuming that I didn't change history, even though I tried."

Adele thought of the Straub family she had saved, but said nothing about them. Instead, she said, "You didn't change history, Mr. Schmidt. If you had, you wouldn't be here anymore."

He sighed. "You're probably right. But I won't know for sure until I return to the future."

"When—when do you leave?"

"Not for a day or two more, at least. I've got to make sure all my recordings are set."

"Hm," Adele said, and returned to perusing the paper. After a moment, she found something that made her gasp loudly.

"What is it?" Schmidt asked.

She pointed at the article. "It says here that they've set up a makeshift morgue at the Charities Pier on East Twenty-Sixth Street."

Schmidt leaned over and took a look at it. "Yes, they have."

"Did you—where is my mother?"

A dark cloud seemed to pass over Schmidt's face. He cleared his throat and said, "I'm sorry, Adele. I was too late."

Adele felt a lump in her throat. She held back her tears and said, "I see."

"The fire was everywhere. I couldn't even find her." He paused. "But I tried, Adele. I did try. Please believe me."

She pushed the pile of newspapers to the floor. "I need to go to the morgue," she said. "I need to find my mother."

"You can't," Schmidt said.

"I can and I will!"

He hesitated, then nodded. "All right. But let me go with you. She may not even be there. And even if she is, you may not like what you find."

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"You wish to come with me?"

"Yes, I do." He paused. "You've already been through a lot; I want to make sure you're all right."

Adele studied the earnest expression on Schmidt's face, and then nodded. "Very well. Let us go immediately."

They left the room and descended the stairs to the hotel lobby. Schmidt tipped a doorman, who called for a horse and carriage. "Mr. Schmidt, I thought we would take a public conveyance."

"This is more private."

"Also more expensive."

He shrugged. "I have resources. Please let me assist you as I can."

Adele nodded. "Thank you."

"You're welcome." Schmidt held the carriage door for her, and the two of them rode to the pier.

Adele and Schmidt descended the carriage at the end of the street. As Schmidt paid the driver, Adele took in the sight. Huge crowds of people, mostly men, wandered all over the pier, speaking in hushed, quiet tones. Many carried photographs of their loved ones, pressing them onto other people in the crowd and asking if anyone had seen them. Policemen were scattered about the crowd, but some were patrolling right where the carriage dropped them off.

"Sir, madam, may we ask your business here?" one of the policemen asked with a harsh tone in his voice.

"We were on the boat," Schmidt said. "We're hoping to find this lady's mother."

"Oh." He moved to let them by. "Sorry, sir, but we thought you might be more curiosity seekers."

"What?" Adele asked. "Did I hear you right?"

The policeman nodded. "It's disgusting, isn't it? A lot of them came here Wednesday night and Thursday. For the excitement of being here."

"Fire and Flames," Adele said under her breath.

"What, miss?"

"Nothing."

As they walked into the crowd, Adele's gaze shifted from left to right. When they got to the smaller crowd in front of the covered pier, she whispered, "It seems so calm."

One of the men waiting there responded. "There was a riot yesterday," he said. "Shortly after Mayor McClellan left. But the police got it under control."

"Oh," Adele said, not sure what to say. "You were here yesterday?"

The man nodded. "My wife and children weren't in the morgue yesterday. I know they've got to be alive somewhere. I just know it. I'm hoping someone here might have some information."

Another man joined the conversation. "Things were really bad yesterday. Some people tried to jump in the river when they found the bodies of their loved ones."

"Oh," Adele said. "I hope—that is—I'm sorry."

The man nodded. "Thank you. I'm sorry for whatever loss you've suffered as well." He paused. "I've found some of my family, but not all. I'm hoping to find the rest today so we can bury them all together."

"Conrad Muth," said a morgue attendant at the entrance.

"That's me," the man said.

"Come with me, please."

Adele moved forward before the attendant and Mr. Muth could move away. "Excuse me, please. I'd like to check in."

"What's your name, Miss?"

"Adele Weber. I'm looking for my mother, Mathilde."

The attendant made a note on a piece of paper. "Okay, Miss Weber, we'll call you when we're ready for you." He paused. "I don't want to raise your hopes, though, Miss. There's only about twenty-five bodies left. If you haven't found your mother by now . . ." He trailed off.

"Miss Weber was recuperating from the fire," Schmidt said. "She hasn't been here yet."

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"Oh. Why don't you come in right now, then? Most of the others are here for a second or third look. You really should have priority."

"Thank you."

Adele, Schmidt, and Muth followed the attendant into the makeshift morgue. Adele gasped when they walked in. Each body lay in an open coffin, surrounded by and covered with ice, so that only the face showed. The floor of the warehouse was wet with the runoff from the coffins, and a slight putrid smell permeated the air.

The attendant passed Mr. Muth along to another attendant, and then gave his full attention to Adele. "My name's Bob, Miss. I'll take you and your friend down the row."

"Thank you."

The three of them walked deliberately past the coffins, and as they did, Adele took a look at the face of each body. She covered her mouth with her hand to keep out the stench, and was grateful when Schmidt gave her a handkerchief to help.

They passed one body, then another and another, until finally they reached the end of the row. Adele took one look at the face, and recognition hit her like a punch in the stomach.

It was her mother.

She turned away, sobbing, and buried her head in Schmidt's shoulder.

"I take it this is the one," Bob said.

Schmidt nodded, while Adele continued to cry.

"Could you give us a moment?" Schmidt asked the attendant, who nodded and backed away.

Adele hugged Mr. Schmidt even tighter, and in between her sobs, she said, "You didn't even try to save her. Why didn't you save her?"

"That's not fair, Adele," Schmidt replied gently. "You know that in the end I tried to save everyone."

Adele nodded and wiped away at her tears. "I know. I'm sorry. I just—"

"I understand."

As soon as her tears were spent, she let go of Schmidt and the attendant scurried back. "Miss, would you come with me, please? We need you to fill out the death certificate and body removal permit."

"I—I—" Adele began. Then she turned to look at Schmidt. "You were right," she said. "It's too much."

"I'll take care of it," Schmidt said. "Lead the way."

They followed the attendant to a nearby room and took care of the mundane business of death.

Adele buried her mother on Black Saturday, June 18, at the Lutheran cemetery in Middle Village, Queens, along with most of the victims whose bodies had been found. She walked through the graveside funeral and burial with an eerie sense of detachment.

Back at her apartment, Adele sat at the dining room table, feeling emotionally drained, while Schmidt fiddled with his futuristic devices. She watched him in silence for a few minutes, and then finally spoke. "So, Mr. Schmidt. Did you get everything you needed?"

Schmidt nodded. "I think I have. I've recorded the tragedy through the memory recorders implanted in everyone's minds, including—"

He cut himself off, and left it for Adele to finish. "Including the minds of those who did not survive."

"Yes."

Adele pondered her next question carefully. "Do you have my mother's memories in there?"

"Um. Yes. Yes, I do."

She stood up and walked over to him. "Where's that helmet? I—I want to experience my mother's last moments."

"I really don't think that's such a good idea."

"But Mr. Schmidt—"

"Adele, these memories are meant to be experienced by people far removed from the original tragedy, people with no personal connection or loss. Are you

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sure you want to do this?"

She threw up her hands in frustration. "I don't know what I want! Perhaps I want to erase her memories, so no one ever sees them." She paused. "But I want to remember her, and I want others to as well."

He handed over the box. "Adele, I've brought up your mother's file. If you push that button, it will erase her memories."

Adele took the box and thought long and hard about what she was about to do. "I don't want anyone to violate her privacy. But I know how important this is to you. I can't make that choice. I can't deny her memories to history if you went to such trouble to mine them." She held the box out to Schmidt. "Do with them as you will."

Schmidt took the box back, and without hesitation he pushed the button. The box surprised Adele by speaking aloud in a monotone. "Memory file: Mathilde Weber. To erase, push the button again."

Schmidt pushed the button again. "Memory file: Mathilde Weber. Erased."

Adele took a deep breath. "Thank you."

Schmidt nodded. "We didn't need her recording anyway. Not as long as we have you to remember."

Adele nodded. "And apparently I have a very strong mind, you said. After all, the disorienter didn't work on me."

Schmidt blinked rapidly, then looked away.

"Mr. Schmidt? What is it?"

He looked directly at her. "Adele, I lied to you before about the disorienter. There are no minds strong enough to resist it. It works on everybody."

"Then why didn't it work on me?"

"You were right the first time. I couldn't bring myself to erase your memory of finding *Ship Ablaze*."

"Why couldn't you?"

He hesitated. "I didn't want you to go on the excursion. I wanted you to survive."

Adele smiled. "I love you too, Lucas."

He cleared his throat and rocked slowly back and forth on his feet. "I guess that's what I meant."

"I know," Adele said, and then she frowned. "When do you have to leave?"

"I ought to leave immediately. The longer I stay in 1904, the greater the chance I'll contaminate the timeline."

"If we love each other, Lucas, we should stay together."

He gave her a sad look. "I can't stay here in the past. I have a job, other missions. Responsibilities."

"If you can't stay in the past," Adele said, "then take me with you to the future."

Schmidt wiped a tear out of his eye. "I can't. The consequences could be disastrous."

"On a universe-destroying scale, or just a personal one?"

"Taking a person out of their proper time—"

"Is it so dangerous to remove me from 1904? From what you've said, I had a feeling that—well, let me put it to you this way. According to history—that is, your original history—did I survive?"

He looked away for a moment. "No. You did not."

She nodded, and looked around the room. "Well, there's nothing for me here anymore. My community has been ravaged by this conflagration. And, by your own arguments, my continued presence here would change history."

He shook his head. "Not significantly. You're but one person who is part of a tragedy that will be forgotten over the next hundred years."

"But even one person can make a difference. My presence here might alter the future, and you would return to a world where you do not exist."

"I—that is—" He paused.

"'The consequences could be disastrous,'" Adele said, quoting his words back at him.

"Perhaps you are right," he said, smiling. "It would be safer for me to take

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you back to the future after all."

"Thank you."

"But the future is a strange place, Adele. I'm not sure how well you'll be able to cope."

She moved closer and gently brushed his lips with hers. Schmidt's eyes opened wide, but he did not turn her away.

"If I go to the future," she asked, "will you be with me?"

He hesitated, then nodded. "Always."

"Then I imagine I shall be able to cope."

"But what will you do in the future?"

"I thought that would be obvious. You came all the way back to my time to ensure that the future remembered the *General Slocum*. I shall go all the way forward to your time to ensure the same."

Schmidt took her hand, and the past winked out of existence.

But never out of memory. ■

IN TIMES TO COME

Vincent Di Fate once again has the cover for our July/August "double" issue, this time for *An Old-Fashioned Martian Girl*, a new serial by Mary A. Turzillo. The story itself is old-fashioned only in the sense of having an intriguingly intricate plot with plenty of adventure; it also has some very new ideas and some engagingly fresh and memorable characters. Turzillo has a unique bonus qualification when it comes to imagining how life and culture might develop in a Martian colony in a few decades: a live-in consultant with access to the very latest information on that planet. (She's married to Geoffrey A. Landis, and as I write this they're both in Pasadena digesting the rover *Spirit*'s letters home as they come in!)

In keeping with suggestions from some of you readers, this double issue will offer two quite different science fact articles, both by uniquely qualified authors. Eric S. Raymond is well known in computer circles, especially for his association with the "open source" mode of software development, and his article on that shows dramatically how, when people are put into a really new situation, they don't always act the way you'd expect. Joseph J. Lazzaro offers news about "artificial vision": visual prosthetics for the blind. He has a vested interest in such research, having been legally blind himself for some years. That hasn't stopped him from doing an impressive range of things (including repairing computers, which he says sometimes startles customers), but he'd be glad to expand his options even further—and the prospects look promising.

We'll also have stories by such writers as Michael F. Flynn (who recently won the first Robert A. Heinlein Award, but if "The Clapping Hands of God" reminds you of anybody else, it's more likely to be Poul Anderson), Allen M. Steele, Bud Sparhawk, and Richard A. Lovett. In anticipation of *Analog*'s upcoming 75th anniversary, Kyle Kirkland offers a special feature on your relationship with the magazine: a history of "Brass Tacks." And, as usual in the summer double issue, we'll present the results of The Analytical Laboratory for 2003—your own choices of the best of what *Analog* published last year.

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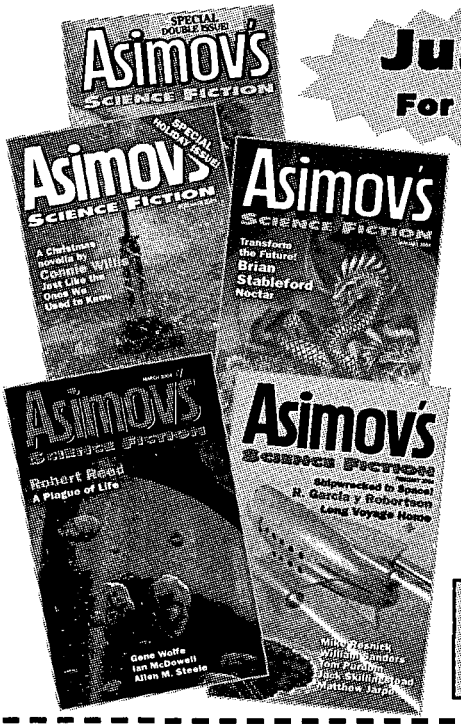

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SCIENCE FACT

THE TRANSIENCE OF MEMORY:

We Really *Can* Remember It for You Wholesale

Richard A. Lovett

The 1990 movie "Total Recall," based on the Philip K. Dick novelette "We Can Remember it for You Wholesale," envisions a future in which memories can be implanted well enough for you to "remember" a vacation (in the story, a trip to Mars) without actually taking it. As with other tales of hypnosis, brainwashing, and dream worlds, the story's power comes from the questions it raises about truth, fantasy, and the reliability of memory. These stories all ask the same chilling question: What would it be like if we couldn't distinguish true memories from false ones?

The answer isn't as deeply in the realm of science fiction as we might like to believe. Memory is notoriously slippery, and events we'd swear we witnessed might not have happened the way we remember. They might not have happened at all. This is a particular problem for childhood memories—even important ones which, when recovered in adulthood, may form the basis of long-after-the-fact accusations for crimes such as child abuse. How do we know whether these memories are accurate?

Consider the case of Donald Thompson, an Australian psychologist who, in the 1980s was accused of rape. The evidence against him was very simple: the victim vividly remembered *him* as her attacker and could easily have picked him out of a lineup. But her memory *had* to be distorted, because Thompson had an ironclad alibi. At the time of the attack, he was on live television—talking, ironically, about memory and memory distortion. The victim had been watching the program when she was attacked, and had merged Tompson's face into her traumatized memory of the event.[1]

According to Daniel L. Schacter, chair of the Department of Psychology at Harvard University, there are seven basic types of memory imperfections. In his book, *The Seven Sins of Memory*, Schacter catalogs them as transience, persistence, absentmindedness, blocking, bias, misattribution, and suggestibility.

The first four are related to forgetfulness. Of these, transience is the simplest. When I was in grade school, I

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could recite the capitals of all 50 states and list all U.S. presidents, with dates. Today, I'd botch up quite a few. Where did that information go?

Even relatively recent memories suffer from transience. Try the following experiment: engage a friend in conversation, taping the discussion for later reference. Whenever your friend says something pithy, write it down, trying for a direct quote. If you're like most people, you'll be lucky to get beyond the fifteenth word before you start diverging from what's on the tape. Even trained reporters usually veer into paraphrase by word twenty-five, and with each successive word, the paraphrase gets worse.[2] Putting this to the test is a humbling experience: you *know* what was said—you can almost hear it echoing around your brain, but it slips away faster than you can scribble it down. Worse, it slips away faster than you think it does, which is why it's easy for well-intentioned reporters to misquote people.

The opposite of transience is persistence: the inability to forget things you'd really prefer not to remember. It could be as innocuous as the tune you can't get out of your head, or as severe as posttraumatic stress disorder.

Absentmindedness and blocking are also common. You absentmindedly tune me out for a paragraph and can't remember what I said; you promise that you'll mow the lawn . . . and you really *did* mean to do it. In blocking, you know something and *know* that you know it—it's on the tip of your tongue—but you just can't quite find it because the memory is temporarily inaccessible. Blocking is disconcerting because it increases with age, making you fear you're getting Alzheimer's, but it's normal, even if not well understood.

But the main topic of this article is memory distortion, which Schacter considers in his last three categories: bias, misattribution, and suggestibility.

Bias is the interpretation of memory in light of current knowledge and beliefs. It might be hard for me to accurately recall what it felt like prepare for a crucial exam that I subsequently aced. Was I as confident of doing well, as I now think I was, or is that memory colored by my knowledge that I actually did do well?

Misattribution is what nearly put Thompson in jail for a crime he didn't commit. Again, we all do this to some degree. A year from now, you may remember reading this article, but you may think someone else wrote it, or forget whether it was in *Analog* or *Scientific American*. Misattribution is a big deal when it leads to erroneous criminal charges, but merely a nuisance when it causes you to waste time looking in the wrong places for citations.

Both of these are important, but suggestibility is by far the most interesting memory distortion. It is nothing less than the implanting of false memories—by accident or design. And these memories can be so vivid that people would swear on a stack of Bibles that they're accurate, even, in some cases, when they're frankly impossible.

There are several ways to distort memory. Schacter has experimented with this via simple word tests, using a method dating back to the late 1950s. Volunteers are asked to study a list of

[1] From Daniel L. Schacter, "The Seven Sins of Memory: A Cognitive Neuroscience Perspective," presentation at the 2003 annual meeting of the American Association for the Advancement of Science. See also, Steve Grant, "How Not to Forget: Memory Aids Can Help Keep Thoughts From Slipping Away," *The Hartford Courant*, September 8, 2002.

[2] As a journalist, I myself have done this "experiment" countless times whenever I play back an interview tape against my written notes. The results make me leery of using extended direct quotes unless I'm transcribing them from a tape.

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words, centering on a "theme" word that's not actually presented. For example, the list might be *candy, sour, sugar, bitter, good, taste, tooth, nice, honey, soda, chocolate, heart, cake, eat, pie*. Study participants are then tested on their memory of the list by being presented with words, one at a time, and asked to identify them as "old," if they were on the original list, or "new" if they weren't. With the above list, most people will accurately identify something like *horse* as new, but many will be sure that *sweet* was on the list, when actually it wasn't. The reason: sweet is the theme word around which all of the others centered, and the list is designed to get you thinking about sweetness without actually using that word.

Schacter views this as a type of misattribution: you yourself are thinking about sweetness, and misattribute your own thoughts to the actual contents of the list. But it's also a very simple form of implanted memory in which the experimenter carefully leads you down the garden path to a tempting but false conclusion.

That, of course, is a far cry from fabricating a trip to Mars. But other researchers have experimented with considerably more detailed memories. Michelle Leichtman, a researcher in the Department of Psychology at the University of New Hampshire, conducted a now-classic experiment with young children in which several kindergarten and pre-school classes received a visit from a man introduced simply as Sam.[3]

Sam's visit was very straightforward. He walked into the classrooms, looked around, and left, without saying or doing anything else. But beforehand, different classes had been told different stories about what to expect. Some had been told nothing other than the simple fact that Sam would visit; others received detailed depictions of him as bumbling but kind, presented as stories of funny things Sam had done on other occasions.

Five weeks later, the children were asked to recall Sam's visit. When asked nothing but open-ended questions, those who'd not been given the bumbling-but-kind stereotype responded with accurate memories. But some of those who'd been prepped to expect clumsiness produced memories in line with that expectation.

Other children, including some who'd been prepped to expect clumsiness and some who weren't, were guided through their memories of Sam's visit with inaccurate, leading questions, such as: "Do you remember when Sam accidentally tore a page out of the book? What was he wearing when he did that?" A few of the control-group children fell for this trick. But among those who'd been told to expect clumsiness, so many remembered such false incidents that Leichtman calls the implications "alarming" for the use of poorly recovered childhood memories as testimony in sex abuse cases. Overall, she says, leading questions, when combined with misleading suggestions previously implanted by adults, can powerfully distort children's memories. Worse, the children's reports of their now-false memories can be compelling, detailed, and remarkably durable.

Take Me to Your Leader

Children aren't the only ones who can suffer from this. Richard McNally, a professor of psychology at Harvard University, argues that UFO abductees have experienced something very similar in adulthood.[4] The process is more complex, he says, but the end results are memories so deeply engrained that the abductees may even appear to suffer post-traumatic stress symptoms similar to those experienced by Vietnam veter-

[3] Michelle Leichtman, "Memory in Children," presentation at the 2003 annual meeting of the American Association for the Advancement of Science.

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ans or sex-abuse victims.

McNally began his study by running an ad in the Boston Globe asking, "Have you been abducted by aliens?" After screening out the jokesters and those who thought he was talking about foreigners, he wound up with six women and four men, average age 48, who convinced him that they truly believed they'd been abducted.[5]

On psychological profiles, these people looked perfectly ordinary, except for a few signs of post-traumatic stress. They weren't depressed, anxious, or in any way psychologically abnormal. They did, however, test high in "absorption," a personality trait that allows you to become deeply engrossed in whatever has caught your attention, such as the imaginary world of a good novel. (In other words, these people sounded a lot like *Analog* readers.[6]) They also showed "a whiff" of *magical ideation*, which McNally describes as "belief in unconventional modes of causation," and they tended to be interested in New Age topics such as tarot, astrology, ghosts, and unusual forms of alternative medicine—a collection of interests that McNally lumps together as reflecting a preexisting belief in the paranormal.

McNally believes that his abductees' experiences all began with a phenomenon called *sleep paralysis*, combined with *hypnopompic hallucinations*—a term that simply refers to dreamlike visions occurring during the transition from sleeping to waking.[7] Both are actually quite normal, he says—no more dangerous than a case of hiccups—but they're extremely frightening and produce vivid, inexplicable memories.

Sleep paralysis ordinarily occurs during our dreams to keep us from running around acting them out, and injuring ourselves in our sleep. Usually, the paralysis fades before we wake up. But that doesn't always occur; about one person in three has occasionally awakened before the paralysis has worn off.

When this happens, the dream state can linger into wakefulness, producing vivid hallucinations that we remember much better than we do our normal dreams. A friend of mine calls these "waking dreams." In his case, they tend to happen when he's camping in the wilderness. He wakes up paralyzed, convinced that wild animals are prowling around his tent. Still paralyzed, he fades back to sleep, but in the morning, he has a such a powerful memory of wolves, bears, or lions that he's wanting to search for tracks.

The classic alien abduction tale has much in common with my friend's nocturnal visitations by animals: *I woke up paralyzed, felt a presence*, etc. In fact, if my friend had been an *X-Files* believer, he might have put a quite different spin on his own experiences. McNally claims that abductees, with their strong abilities to focus on particular lines of inquiry and pre-existing New Age beliefs, become understandably interested in finding out what happened to them. Often, they use hypnosis or other therapies that take them back to the time of

[4] Another Harvard researcher, John Mack, believes that alien abductions are real. See Kaja Perina, Cracking the Harvard X-Files," *Psychology Today*, March/April 2003, pp. 66-76, 95. McNally's research is interesting, regardless of whether you believe in alien abductions or not.

[5] Richard McNally, "Remembering Trauma," presentation at the 2003 annual meeting of the American Association for the Advancement of Science.

[6] I myself would probably test high on absorption, as is evidenced by the fact that I wrote the first draft of this article sitting in a Starbucks surrounded by conversations that I automatically tuned out to pay attention to my own work.

[7] Hypnopompic hallucinations are ones that occur on waking. The opposite are hypnagogic hallucinations, which occur when one is falling asleep.

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the event, perhaps with leading questions derived from the therapist's own UFO beliefs. The abductees then "recover" the entire alien-abduction mythos, complete with sexual experimentation designed to produce a human-alien hybrid race, and all the other trimmings. But instead of recovering real memories, McNally says, they've had false ones implanted—created by their own imaginations from the powerful hallucinations they had during sleep paralysis, and sometimes reinforced by suggestive forms of memory recovery therapy. Sleep paralysis and hypnopompic hallucinations aren't new, McNally adds. Other cultures simply plugged them into a different mythos, producing tales of witches and demons.[8]

Subliminal Effects

Another form of mind manipulation is subliminal advertising. The concept dates back at least to Freud, and has also been kicking around science fiction for a long time, but it garnered new interest in 2000, when one campaign was accused of inserting the word "rats" into political ads, in an effort to program voters' subconscious minds with reflexive dislike of the opposing candidate.

Subliminal advertising works by flashing pictures or text more rapidly than the conscious mind can process them. Not only are people's minds being programmed, but the victims are unaware of being manipulated. Following the 2000 presidential campaign, Joel Weinberger of Adelphi University's Derner Institute in Garden City, New York, decided to test whether this actually worked by setting up a website on which people rated a hypothetical political candidate, after being flashed with one of four subliminal messages. Those messages were "RATS," "STAR" (*rats* spelled backward), ARAB, and XXXX (a neutral control).[9]

The study proved that people really don't like rats. "STAR," which could be viewed as praise, had little effect, as did "ARAB" (good news for those concerned about anti-Arab bias), but RATS substantially lowered the viewers' impression of the hypothetical candidate.

A more complex experiment, conducted in the laboratory, examined the reaction of people to the subliminal message "MOMMY AND I ARE ONE." Prior research had indicated that if people are given subliminal flashes of this message and then asked to recall their childhoods, it often increases their tendency to remember good events. But other studies had found that the same message can promote bad memories.

Weinberger hypothesized that the subliminal message was actually received in both situations, but that the results depended on whether people had good or bad childhood experiences with their mothers. To test this, he recruited a new group of study subjects and gave them a sociological test designed to assess their relationships with their mothers. Then, after stimulating some with the Mommy message, he asked everyone to write down memories from their childhoods. The goal

[8] These supernatural connotations aren't limited to Western cultures. In China, hypnopompic hallucinations were called *gui ya*, while in Japan the term was *kanashibari*. The Chinese term means "ghost pressure," while the Japanese one means that the devil stepped on your chest. See K. Perina, *Psychology Today, supra,*, at p. 72.

[9] Joel Weinberger, "Conscious and Unconscious Elements in Remembering," presentation at the 2003 annual meeting of the American Association for the Advancement of Science. As of press time, the survey was still posted on the Internet at *www.thoughtscan.com*. Responses are no longer being compiled, but Weinberger asks that people visiting the site at this time enter their ages as 111 so there is no possible risk of contaminating the data.

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wasn't to have them write complex essays, but simply to produce lists, such as, "I got a puppy for my birthday," "I went to summer camp," "We moved across town," "My sister fell off a horse and broke her collarbone," "My parents got divorced." After a few minutes, time was called, and the test subjects were asked to rate each memory as good or bad, on a multi-point scale. Those who'd revealed positive childhood experiences with their mothers on the sociological exam responded positively to subliminal stimulation with "MOMMY AND I ARE ONE." Those who had poor experiences in childhood didn't take comfort from that message but were instead induced to recall a higher than normal level of bad memories.

It's not an earthshaking finding, but the Mommy test does reveal some interesting things about subliminal messages. On the most superficial level it's another confirmation that subliminal messages do indeed work—the mixed results of earlier studies were simply due to an overlooked variable. But on a more complex level, it means that the effects of subliminal messages may vary, depending on what type of images they provoke in each recipient. Folks like Willard, the rat-loving outcast in the horror movie of the same name, would probably vote *for* a candidate about whom they'd been subliminally programmed with messages about rats! An interesting science fictional angle on this might involve a subliminal manipulation program that is uncovered when it backfires in exactly this manner, by inducing a subset of the population to do the precise opposite of what the advertisers intended.

* * *

Kissing the Frog

However powerful they are, subliminal messages appear to be quite limited in scope. In the MOMMY AND I test, the messages affected the subjects' attitudes about their childhoods, but did not strongly alter the content of their memories. Those who'd been flashed with MOMMY AND I ARE ONE did not have larger numbers of Mother-related memories. Thus, while subliminal messaging might be used to make you *want* to go to Mars, it's not a promising method for causing you to remember a nonexistent trip.

Currently, in fact, there does not appear to be an easy way to implant detailed memories in people who are aware of the process.[10] But just as Leichtman has proven that it's possible to use leading questions confuse the memories of young children, Elizabeth Loftus, a memory researcher at the University of Washington, has demonstrated that it is possible to implant some truly astounding memories in adults who are unaware that they are being manipulated.[11] These memories, she found in a series of studies reported in early 2003, can be extremely detailed, and while research ethics prevent the researchers from tinkering with anything but relatively trivial memories, there's no reason that similar techniques couldn't be used for considerably more sinister purposes.

In one study, adult volunteers were given a variety of objects, such as pink scissors or a toy frog. They were encouraged to play with these objects in whatever innovative fashions came to mind, while the researchers kept track of what they did. The following day, and on as many as four additional follow-up sessions, the subjects were asked to

[10] Full-blown brainwashing of unwilling subjects, carried out over the course of a considerable length of time, might be a different matter, but that is beyond the scope of this article.

[11] "Elizabeth F. Loftus, "Putting Memory Meat on the Bones of Belief," presentation at the 2003 annual meeting of the American Association for the Advancement of Science.

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imagine doing additional things with these objects. These imagining sessions might contain a considerable amount of sensory detail, such as "Imagine kissing the frog. Imagine the color of the frog and the feel of it against your lips." Some of the imagined actions were familiar, such as flipping a coin. Others were truly bizarre, such as crushing a Hershey's Kiss with a stapler.

Two weeks later, the study participants were asked to report what they'd actually done with the objects. Fifteen percent remembered one of the imagined activities as real—including kissing the frog.[12] Fifteen percent might seem like a low number, but remember, these people had been convinced that they'd kissed a frog or stapled a Hershey's Kiss, simply by being asked to imagine what doing so might feel like. Imagination is an extremely powerful force.

Memory Bugs

A second study applied a more subtle approach to the same end, although in this case the memories were long-ago events from childhood. Loftus recruited volunteers by telling them that she was seeking people to critique advertisements. But, like many psychology experiments, the true purpose was hidden.

Her ad critics were then shown a series of ads, including one touting the pleasures of Disneyland. The Disney ad contained a prominent picture of Bugs Bunny, along with text talking of how shaking hands with him is the type of event that can make a child's day. There was only one hitch: Bugs is a Warner Bros. character who would never be found in Disneyland.

People who spotted this fallacy were labeled as "Bugs detectors" and dropped from the study. The rest were asked if they remembered meeting Bugs on their own childhood visits to Disneyland. Sixteen percent[13] said "yes."

Then the study was repeated by having the subjects examine not one, but three Bugs-containing ads. Now, 36 percent remembered meeting Bugs. When pressed for details, 62 percent of those said they shook his hand, 40 percent hugged him, and at least one heard him say, "What's up doc?" Again, using a very simple ruse, Loftus and her colleagues had persuaded a startling percentage of people that they'd had impossible experiences.

A third study took on the belief that memories of traumatic impacts are so strong that they're immune to such manipulation. To test this, Loftus interviewed Russians about their memories of a 1999 apartment complex bombing in which 230 people died—an event that shocked their country in much the way that the World Trade Center attacks of 2001 shocked Americans.

The Russians were first interviewed in March, 2002, two-and-a-half years after the attack. Using non-leading questions, the researchers asked them to recall what they remembered of that fatal day. Six months later, the subjects were re-interviewed, but this time the interview included a leading question regarding a detail that none of them had reported the first time, and that had not appeared on any of the news coverage of the event. Specifically, they were told: "Earlier, you mentioned a wounded animal. Do you still remember it?"

A full one-eight of these people responded with some form of "Oh, yes." When asked to elaborate, they produced remarkably detailed memories of events that never occurred: "recalling" images such as "a bleeding cat, lying in

[12] This figure is for people who received five imagining sessions. People who received fewer sessions responded more weakly.

[13] So did 7 percent of the control subjects, whose memories had not been contaminated by the ad. Some people simply have poor memories or are so anxious to please the researcher that they'll say just about anything.

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the dust," "a lost parrot in a cage," or "a crazed dog, barking and rushing around the police officers." Again, one person in eight might not sound like many, but how many of us are sure we'll never forget all the details of what we saw on the media coverage of the World Trade Center attacks? Loftus' research indicates that some of us could easily be led to invent details—and that these inventions could, at least in general terms, be guided by a stranger who was attempting to manipulate us. To me, that's deeply disturbing.[14]

Overall, Loftus says, there are three basic steps to implanting false memories:

1. Make the potential event plausible. It doesn't have to be something that the person is predisposed to believe—as in McNally's alien abduction memories—but it does have to carry the ring of potential truth. People who couldn't imagine themselves being uninhibited enough to crush a Hershey's Kiss in the stapler aren't going to be easily faked into believing they did it.

2. Create a belief that the event actually happened. Each of her experiments did this in a different way, but in all of them that was one step in the process. In one case it was done by leading questions; in another it was by guided imagining sessions. In the third it was by creating a scenario (the Bugs Bunny ads) in which people's imaginations were likely to run in the desired direction without any other outside urging.

3. Embellish the belief with sensory detail.

This is not a purely theoretical exercise. In 2002, Loftus suggests that the entire population of the D.C. area was an unwitting subject in an accidental memory experiment, triggered by a report linking the Beltway snipers to a white van.

When the snipers were finally caught, it turned out that they did not own such a van. But from the moment the first van sighting was reported, white vans were seen regularly throughout the manhunt. Yes, such vans are common vehicles. But the frequency and the urgency of the sightings indicates that the expectation of seeing them became part of the terrorized area's collective imaginations.

The world of "Total Recall" might not yet exist, but when it comes to mass hysteria, our collective memories really can be created wholesale. ■

[14] At the same time, I'm not all that surprised by this finding. In 1979, I was on the receiving end of what appeared to be an attempted murder, in which an armed robber marched a companion and me into the woods with the probable intention of shooting us. My companion and I escaped by running in different directions, where we were soon screened by heavy brush.

My memory of the event is full of vivid details. But in late 2002 I had opportunity to revisit the scene of the attack, and was startled to discover that I had trouble recognizing the terrain. In part, that was because the land had changed. Wilderness had turned into five-acre home sites; vegetation had grown and changed; a nature trail had been built where previously there had been none; roads had been paved and realigned. But the bottom line was that I remembered running a "very long" distance "that way," and "that way" led rather quickly to a hillside that I knew I'd not descended. While I was running—expecting to be shot in the back at any moment—my time sense had been totally warped. Seconds had felt like minutes, and I'd run a lot less distance than I'd thought.

If my memory of such a trauma can be so difficult to reconstruct, with no external manipulation (other than the erasure of landmarks by that subdivision), then I have no doubt that Loftus' results are real—and probably on the conservative side of what is possible.

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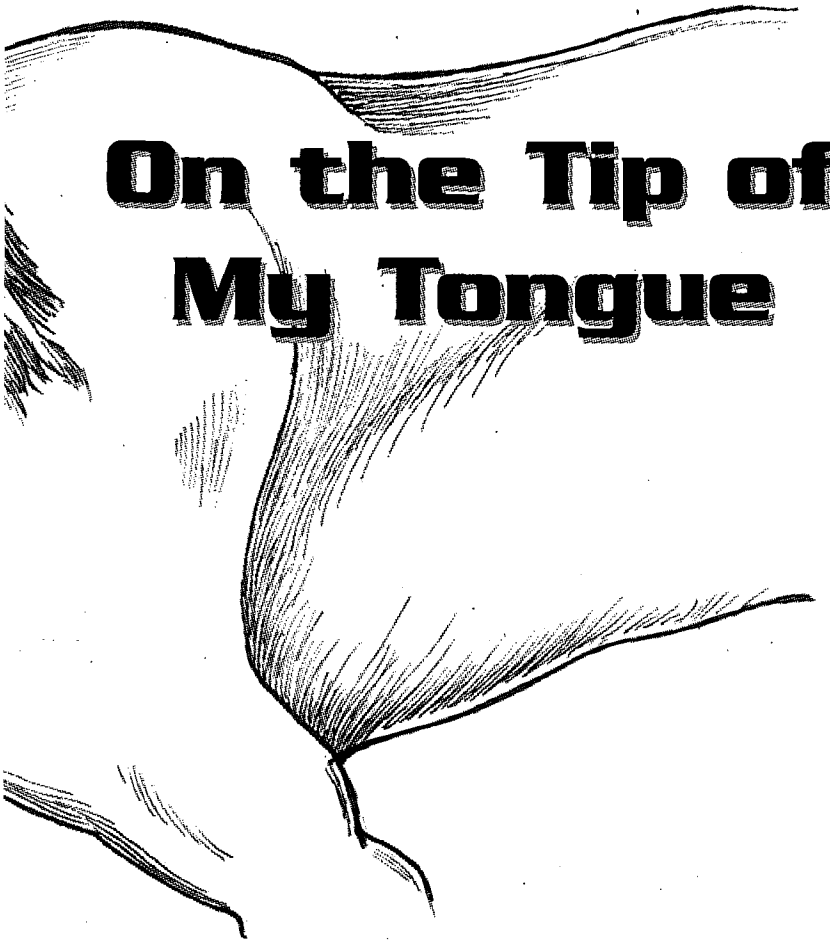

On the Tip of My Tongue

Grey Rollins

Illustration by Wolf Read

Victor is back on a case, with his usual . . . er . . . impeccable taste. . . .

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Of all human customs, the one that's strangest to me . . . no, wait, they're *all* pretty strange. Still, it's hard to top sleep for being entirely absurd, no matter how you look at it. There's no logical reason for it. Yes, I've heard all that addlepated nonsense about using dreams to make sense of the events of the day, saving energy for healing wounds, knitting the raveled sleeve of care, and about ninety-nine other equally muddled excuses. I wouldn't give you a plugged nickel for the lot of them. Sleep wastes, on average, a third of every day of every human. It also requires buying a bed—unless the sleeper prefers sleeping in a mound of hay, replete with insects, mice, and dust. Worst of all, it leaves the sleeper vulnerable to predators that might be lurking in the vicinity.

That is to say, me.

All right, so I overstated the case. I'm about as big a threat to Martin Crofts as an angry goldfish. He's well over six feet tall, muscular in the trim sense of the word, and has long enough arms that he's got the reach on anything less than a giant squid. I come only to his waist, have no claws or teeth to speak of, and cannot lift anything in my hands that weighs more than a pound or two.

But on my side of the scales, I had stealth and the fact that he'd been watching a movie about a particularly ugly dinosaur prior to going to bed.

Advantage to me.

Having padded ever so quietly into Martin's bedroom, I stood next to the bed and took a deep breath. Then, with all the might I could command, I let loose a bellowing roar that would have made a *Tyrannosaurus rex* proud.

Martin never stood a chance.

He awoke screaming, thrashing at the covers like one possessed. I stepped back and let the fit run its course. Once the tumult subsided and he fought his way free of the sheets, he spied me and began cursing in such a steady stream that I began to wonder when he'd stop to breathe.

"It's your fault, you know," I commented casually.

He stopped, panting for breath. "*My* fault?" He gave me a look intended to wither me where I stood. Since he was not possessed of death-ray vision, I stood my ground and weathered the assault. "My fault?" he repeated. "*I* certainly didn't tell you to come in here and growl at me like that!"

"*Au contraire*, those are my precise instructions. My standing orders are to get you up at all costs on any morning when you oversleep."

"I'm *late?*" His head snapped around towards the clock. He groaned and leaped from the bed. "Ohmigod, I'm late."

"I know. That's why I woke you up."

He was already in the bathroom reaching for his toothbrush. "But couldn't you have done something more . . . more, I dunno, more polite?"

"Which time?" I demanded. "The seven o'clock wake-up call. The seven-fifteen, the seven-twenty, the seven-twenty-five, or this most recent one? I *was* polite until the seven-thirty. By then, it was clear that drastic measures were called for."

"Drastic measures," he muttered darkly, shuddering from head to toe.

"It's not my fault that you're afraid of the dark."

Martin looked down at me as though I'd lost my mind. "I'm not afraid of the dark."

"All right. Let me rephrase. You're afraid of dinos in the dark. You were tossing and turning until at least four. If you can't watch scary movies without being afraid of fictitious monsters, I'll have to restrict you to Disney cartoons in the evenings."

He grumbled. He muttered. He called me names. In the end, he relented and scrambled out the door with me tucked under his arm, trying to get to the office on time.

* * *

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Before we even got to the office, I knew we were in trouble. There was a man standing in the hallway with an aura about him that said he'd nearly burned the numerals off his watch glaring at it while waiting for us to arrive. Not an auspicious beginning. Especially when he was the first client we'd seen in nearly three forevers and the rent was late . . . again.

Martin unlocked the door with the arched lettering spelling out his name and waved our visitor in. We passed directly through the outer office—my domain—and into the inner sanctum where Martin slept when he thought no one was watching.

"I hope you were late because you were engaged in gunplay. I'd hate to think that you come sauntering in this late every day of the week," the man snarled.

Without cracking a smile, Martin said, "Had to arrest a rampant dinosaur. He came quietly once he saw that we had him outnumbered."

One skeptical brow arched. "Oh? And here I thought I was engaging a detective—come to find out I chose the wrong door and got an animal control officer."

Martin didn't exactly gulp, but he looked as though he wished he could. "So what can we do for you?"

"We?" our visitor inquired. His eyes tracked over to where I was standing. "Who's this, your pet banana?"

It hadn't been funny the first time we'd heard it, and it hadn't improved with age. Martin, however, managed a weak smile. "Allow me to introduce Victor. He's my associate."

"What species is he?" the man demanded of Martin. "Clearly some sort of extraterrestrial."

Martin shrugged, palms up. "He's the only known representative of his kind on Earth. No one knows where he came from."

I didn't think it was the proper moment to explain that I'd been kidnapped by Martin's uncle, passing into Martin's care after his uncle died. The secret of which planet I'd come from had been lost forever when his uncle's casket went into the ground.

"Victor is quite intelligent," Martin assured him. "He's been a great help on many cases."

It took all my willpower to suppress an indignant squawk. Great help, indeed! If it weren't for me, the oversexed ape would never have solved *any* of them. Don't get me wrong, Martin isn't bad, especially if you make allowances for the fact that he's human, but he's certainly no threat to Hercule Poirot. His major weakness is also his main strength—he's a man of action, not given to over-cerebration. Oh, he claims to be giving things deep thought as he leans back in his office chair, but I suspect that the gears of cognition have long since rusted into dusty silence. It's the snoring that gives him away.

Our visitor sighed heavily and changed directions without warning. "It's like this. Evan Bartles—my business partner—is cheating on me."

"Embezzling?" Martin asked.

"Technology. Sensitive papers and files are missing."

"What kind of business do you have?" I asked.

He turned to look at me. "Electronics. We were the first to market practical liquid transistors."

"Lucrative niche market," I noted, beginning to make surmises about the identity of our visitor. "So why would your partner want to do what he's doing?"

"As I see it, it's one of two things. Either he's selling information to our competitors, or he's planning to go into business for himself. Take your pick."

"And you'd like us to get proof that your partner is up to something," Martin prompted.

The man nodded slowly. "Yes. I'd like proof—real proof—before I either confront him or bring in the law. As things

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stand now, he'd only laugh it off."

Given that we'd gotten off to a rocky start, we got his name at the end of the meeting, rather than at the beginning, the way we usually do things.

Deems Warden. Yes, *that* Deems Warden. Liquitrans Incorporated.

My suspicions had been correct. We were in the big leagues.

"Victor, play me something."

"What kind of something?"

"A substantial something. Classical, I guess."

I began Saint-Saëns' Third Symphony.

Martin doesn't have a sound system any more. It had a bit of a crisis one evening, made emphatic crackling noises, and emitted a foul smell. Once Martin figured out that I could play music with greater fidelity than the dearly departed stereo, courtesy of speaking using a diaphragm, he let dust accumulate on the system's corpse.

Of course, letting dust settle is nothing new with Martin. Housekeeping isn't his forte, and dust tends to accumulate pretty quickly unless Marie takes a notion to visit. The only reason that Marie doesn't have to dust me is that I'm self-cleaning. There's also the fact that I'm ticklish; Marie and a feather duster . . . but we won't go into that. Suffice it to say that I don't tell Martin everything.

Martin was stretched on the couch, staring at the ceiling. "What do you think of this case?" he asked.

I superimposed my voice over the violins. "Evan Bartles didn't get to be one of the leading players in the electronics industry by being a fool. He will have covered his tracks well."

Martin rolled up on one elbow. His eyebrows were doing that trick where they try to meet in the middle. On most people, you'd call it a frown. On Martin, it looked like two woolly worms bowing to each other. "I've been trying to decide whether to start at his house or at work."

"I vote for coming from a third direction. See if he's got a gambling habit or a mistress. Something that might take a lot of money. Something that would drive him to do things he might not ordinarily do."

Martin grunted and rolled on his back again. "You're probably right. Let me sleep on it so I can wake up in the morning and make it sound like it was my idea all along."

"I—"

He was back up on his elbow, transfixing me with a baleful glare. "And *no* dinosaurs!"

"Not even a little, tiny one?" I asked . . . perhaps a little too hopefully.

He snorted. "I'm not sure I trust you. I think I'll lock the bedroom door tonight."

"I can pick locks," I reminded him in a singsong voice.

"Not if the pins have been rubbed with cyanide," he answered in the same tone. "Those who pick locks with their tongues should be wary of such things."

"Spoilsport!"

Deems Warden had given us the names of some of Evan Bartles's friends and acquaintances the day before. However, you can hardly walk up to a man's friend and ask if they know whether he's been up to anything illegal. It just isn't done in polite society. We needed a wedge.

With that in mind, we went to the library to see what we could learn about Evan Bartles. Immediately on walking in, Martin contracted a severe case of lovesickness. Perhaps it would be more accurate to call it lust triggered by a form-fitting cashmere sweater, but I've been told there's such a thing as love at first sight, so I'll give Martin the benefit of a doubt and say it was love.

And, given enough genetic engineering, pigs might fly.

Regardless of which four-letter 'L' word fit the occasion, Martin suddenly decided that I should be the one doing the research while he stood at the circulation desk and flirted with the librarian.

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For her part, the librarian didn't seem to mind. Whatever Martin's got, human women want it, and they want it all. Preferably for immediate delivery.

I took care of that.

As soon as the librarian placed a copy of *Who's Who* before me, I began turning the pages with my tongue, making sure that she could see. Needless to say, that produced a prompt reaction. She came hurrying back over with Martin in her wake.

"*Please!* You mustn't do that! Think of the next person to use the book."

"Sorry, miss," I told her. I held up my arms, which at their thickest were less than the size of her slender wrists. "I'm not very strong."

"But using your *tongue!*" she protested.

I slithered my tongue out to full extension—several undulating feet in all. "Actually, having a tongue like this is quite useful."

She gasped, eyes wide, watching the tip of my tongue wave back and forth through the air as though it were a venomous snake. "I . . . I . . ."

Martin thumped me lightly on the top of my body—what others persist in calling my head. "Victor, quit showing off. People are staring."

Indeed, several people seemed to be taking an interest. Their reactions varied widely, from horror to amusement. Being a member of an alien species on Earth does tend to attract attention. The more different you are from humans, the more pronounced their reactions to you. Most humans, protestations of innocence to the contrary, have not yet outgrown their tribal suspicion of strangers. And I am nothing if not strange to the human eye.

Martin was more than a little irritated with me. He knew full well that I could easily manage to turn pages with my hands, but wasn't going to make an issue of it in public. The librarian went back to the circulation desk in a bit of a huff, leaving Martin with me.

"What did you think you were doing?" he hissed angrily.

"Testing her. She failed. If she can't deal with me, you two have no future. You should be grateful, you cretin. I just saved you the price of a half-dozen dinners at expensive restaurants, two or more pairs of movie tickets, and quite likely a broken heart. You can't afford the money, and your heart has been glued back together so many times it looks like something unearthed at an archaeological dig. Besides, her fingernail polish is chipped. She doesn't take care of herself."

"You cheated me out of a night of supreme ecstasy," he muttered.

"Trust me, the fantasy will last longer than the real thing would have."

He took a deep breath and let it out as a long sigh. "You're probably right." He sulkily turned a couple of pages. "Was her fingernail polish really chipped?"

"And you call yourself a detective!" I groused. "Third finger, left hand."

"I wasn't looking at her hands," he confessed.

"I know you weren't."

Twenty minutes later, Martin frowned. "Huh! Says here that both Deems Warden and Evan Bartles have digital brain implants. Their company has been building experimental IQ-boosters for the military, astronauts, and so forth. They've each got one."

"They're probably the only people who can afford the things," I said acidly.

He looked worried. "If Bartles actually is pulling some kind of funny stuff, and if he's got this IQ dingus, he's probably just going to laugh at us trying to catch him."

"Remember the tortoise and the hare. We have persistence on our side."

Martin cast a hopeful leer at the main desk. "Maybe I should apply some of that persistence to the librarian."

"No," I said firmly. "You need a girl who's a xenophile, not a xenophobe."

He scowled at me. "You're obnoxious when you're right."

"I know. But take heart, I'm only right

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one hundred percent of the time. The rest of the time, I'm sweetness and light."

"Yeah, and either way, I lose."

I opened another one of the books the librarian had piled on the table, this time using my hands, even though it was difficult. "Um, Martin . . ." I began.

"Hmmm?" He was deep in the entry I had been reading earlier in *Who's Who*.

"It says here that Evan Bartles is a collector of exotic pets."

He looked up. "So?"

"Exotic *offworld* pets," I prompted.

"And?"

I made a snorting noise. "That's another reason for you not to get involved with the librarian . . . what she's packing inside that sweater has flattened your brain waves. We could pay him a visit on the pretext that you're interested in selling me. It's the perfect excuse."

"But I wouldn't sell you," he protested.

I rolled my eye—easier for me to do because I have only one. "What is this? Is that librarian emitting some new form of radiation? Perhaps we should leave and see if you regain your mental faculties."

"No, no . . . I think it's a good idea. A great idea. Just . . . let's not take things too far, okay? I'd hate to find myself with no one to wake me up when I'm running late."

It's hard to be mad at Martin when he gets sentimental like that.

Perhaps Martin could have taken the librarian to Evan Bartles's estate on a date. It was as good as a trip to a foreign country. On the other hand, the romance of the moment would have been ruined by his car. Just as we drove up to the gate, it decided to put on an exhibition of mechanical asthma of such special vehemence that I thought we'd have to take a cab home. Librarians are not noted for being impressed by cars that conk out.

Martin had to thump the interior trim panel on the door to get the gears to engage so the window would roll down. He spoke loudly to the intercom mounted in the stone pillar by the gate. "My name is Martin Crofts. I'm here to see Evan Bartles."

"You don't have to yell, sir," a silky feminine voice said. "I can hear you quite clearly. Just a moment, please."

Seconds later, the lock released and the gate silently retracted to the side. "Roll up your windows and stay in your car, sir. When you get to the house, someone will escort you inside."

Martin glanced at me with a wary expression. "Are we in over our heads?"

"Not yet," I assured him . . . but without much conviction.

The driveway was long and winding. It resembled nothing so much as a personal parkway. There was a wide margin of mown grass on either side of the pavement, then thick forest. I thought I caught glimpses of wild animals in the shadows, but was unable to be sure.

"*Whew!*" Martin breathed reverently. "This is some place."

"Over six hundred acres, according to the entry I read at the library," I said.

He shook his head. "It must cost a fortune just to hire someone to mow the—"

I let out a most undignified squeak as a creature the size of a horse charged out of the trees, straight for the car. It came to a snarling halt just before ramming its muzzle into my window.

Martin didn't see it coming until it was too late. Then he did the exact opposite of what I would have done. He slammed on the brakes. "What's *that?*" he demanded, gawking at the slavering monster outside my window.

"Just drive, please," I whimpered, all pretense of dignity gone. "Preferably fast. Better still, turn around and let's get out of here."

"But—"

Just at that moment, the creature opened its mouth *sideways* and snapped at the window, its teeth cracking hard against the glass. Smears of lavender slime marked where its teeth had raked the window.

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Martin got the message. He hit the accelerator.

"What was that thing?" he asked when we'd left it safely behind.

"I've never actually seen one, but I think it's a khoxa," I managed to croak. "I think I know now why we're supposed to stay in the car."

Martin grimaced. "That thing's enough to give you nightmares."

"Better watch out . . . if anyone has a dinosaur, Bartles would be a good bet."

He glared at me. "That's not funny."

The sprawling house was built on a scale such that it wouldn't get lost in all the trees. In fact, it was probably large enough to be visible from space. Two stories tall—three in places—and sprawling in all directions, it had wings larger than most peoples' entire houses.

"How could anyone possibly use a place that big?" Martin asked. "I mean, once you've got a kitchen, a bath, and a bedroom, you've got the essentials. Add a living room to socialize in and you're pretty much exhausting the possibilities for a mere mortal."

"Evan Bartles is not a mere mortal. He's the co-founder of Liquitrans. People like that aren't born, they descend from the heavens on beams of golden light. His dog probably has a separate bedroom for every night of the week."

Martin parked on a circular drive paved with dark brick. He stepped smartly around the car, opened my door, and began unraveling me from the seat belt. It's easier to wind it around me three or four times than it is to catch me every time I fall. I'd sit if I were flexible enough, but I've got about as much bend as an oak limb, so I stand. At least that way I can see.

I heard a steady drumming sound. "Uh, Martin . . . weren't we supposed to stay in the car until someone came and got us?"

"Huh?" But in that instant, he heard the approaching hooves and did what any red-blooded American male would have done. He leaped headlong across the front seat while I lassoed the door handle with my tongue and slammed the door shut.

It wasn't a khoxa. In fact, I didn't know what it was. It looked like a furry centipede about three feet tall and eight or ten feet long. But its front end was all teeth. No two the same length. No two pointed in the same direction. An orthodontist's dream. The gullet in the middle of all that snaggled dentition was of sufficient diameter to swallow me whole, thus rendering the teeth moot, except as a means of inflicting pain and agony on the creature's hapless victims.

The front door opened and a man in maroon livery stood there. He regarded us silently, his expression indicating that he considered us mentally deficient. He then took a short metal tube out of his pocket and blew two notes. They were so high-pitched that I doubted Martin could hear them, but clearly the centipede did. The front third of its body arched up off the ground, curving towards the man. I wasn't sure if the thing even had eyes, but it was clearly pointing towards him. It then sauntered off as if it had been patted on the head for doing such a good job of cornering us.

The man walked over and opened my door as though he were used to seeing the soles of guests' shoes every day of the week. In a very starched, proper voice, he inquired, "You're Martin Crofts?"

Martin, still prone on the front seat, nodded back over his shoulder. "I am."

"If you would follow me, sir."

Martin wormed himself upright and got out again on his side of the car. Then he came back around to my side and lifted me down to the ground. "Where'd that thing go?" he hissed.

"I don't know. I don't see it," I replied, *sotto voce*.

Not softly enough. The man with the whistle commented in a very matter-of-fact tone, "It will come if you stray more than ten feet from me, if I call, or if you pass the boundaries of the driveway. I

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would advise coming directly inside." With that, he turned and marched into the house. It's no exaggeration to say that we were nearly treading on his heels.

The entry hall was at least the size of Martin's apartment, but three stories high. Our guide led us down a hall to the right of the main stairway. I amused myself by counting rooms as we passed, but quit when I reached fifteen, realizing that the final count wouldn't do me any good. I still wouldn't know what all the rooms were for.

Martin leaned down and whispered, "Remember when we did the Copley case? This place has theirs beat by a mile."

We finally reached a room about the size of a handball court. It had cages in three tiers along one wall, with catwalks to reach the middle and upper rows. The other side of the wall of cages was open to the outside air. The smell in the room was rich with animal odors. There was a desk in the center of the remaining floor space, with a few files scattered on top and a hypodermic. The man seated at the desk looked up as we were led into the room. He was slightly overweight, with a round face and small, piggish eyes, narrowly set.

"Ah, yes, Mr. Crofts, I'm so glad you could come." His eyes fell on me. "And this must be the animal you spoke of." His eyes narrowed as he smiled. "I've never seen one quite like it."

Being called an animal didn't really bother me—we're all animals when you get down to it—but being reduced to an "it" annoyed me. I took a dislike to him immediately.

He turned back to Martin, smiling a wicked smile. "Sooo," he began, taking delight in drawing out the syllable, "Mr. Crofts, are you here to sell me an animal, or are you here to investigate me?"

Martin blinked, but said nothing.

"Oh, come, come . . . you call, offering to sell me a unique animal. I check and find that you have no license to sell exotic animals. This interests me, so I dig a little deeper and find that you are a private investigator. So that raises various questions in my mind."

"Is it illegal to sell me without a license?" I asked, stalling for time.

Bartles started, then mastered himself and tapped his chin with a fingertip. "The creature speaks . . . and clear, unaccented English, no less. You didn't mention that on the phone."

"I'm full of surprises." I padded over to the nearest cage. It held an infant monardun. "Speaking of licenses, ownership of a monardun is illegal. I doubt seriously that you were overly concerned with whether the person who sold you this animal had a license."

Bartles pursed his lips, regarding me carefully. "And intelligent, too. This grows more interesting by the minute."

Martin had perched nonchalantly on the corner of the desk. "Yes, he's quite intelligent. More so than most humans."

"Indeed." He swiveled in his chair to face in my direction. "So how do you feel about being sold?"

"I've never been sold before. Ask me after it happens and I might have an opinion." I saw a creature on the floor on the other side of the desk. I waddled over to it. It was medium brown and conical, with faint pink lacy colorations on its sides.

"That's a vilta," Bartles offered. "They're like a frog in many ways. They have a long tongue that they use to strike at insects. But there's a twist. They also have internal structures not unlike the cells in an electric eel. Rather than having a sticky tongue, they generate an electric shock that stuns the creature they're trying to eat. Sometimes at night you can even see a tiny spark when they strike."

"And you use them for pest control?" I guessed.

He nodded. "Yes. They're able to live quite well off of Earthly insects—mosquitoes, roaches, and such. In fact, I'm in the process of getting clearance to sell them for exactly that purpose. They're not much good for anything else, unfortunately, but it should prove to be a

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profitable sideline." He smiled, an expression that narrowed his eyes to slits. "I'm interested in far more than electronics, you see."

He stood, walked over to the vilta, and nudged it with his toe. I noticed he was wearing carbon-impregnated shoes—all the rage among computer folks for keeping the buildup of static charge to a minimum. It squeaked and flicked its tongue at him, producing a tiny crack as a spark jumped to his shoe—probably a defense mechanism—and skittered sideways on short legs for a few feet, then sat again. Bartles squatted in order to be eye-to-eye with me. "You still haven't answered my question. Are you here to investigate me or sell me this magnificent animal?"

Having our bluff called was going to make it difficult to proceed. "We're looking you over," I admitted.

Bartles nodded, standing. "I see. And for what? My possession of animals that the government thinks I shouldn't have?"

Martin was still staring at me goggle-eyed for having admitted that we weren't there to sell me. He wasn't picking up on the obvious entry that Bartles was giving us, so that meant that it was up to me. "Well, you must admit that you've got quite a collection of creatures. Was that a khoxa I saw when we first came in?"

"Now, *that* one I have paperwork for. I observe the niceties when I can. If an animal can be obtained legally, I do so. I have files and files of forms clearing the vast majority of the animals that you see here. The rest . . . well, let's just say that I've always had more than a passing interest in exotic animals. And how much more exotic can you get than offworld species?"

Martin had picked up the syringe that had been on the desk. Bartles noticed. "I care for my pets. Believe it or not, I almost became a veterinarian. But vets don't make the kind of money that I do now."

"And spend all your time with dogs and cats? But that wouldn't be exotic enough, would it?" I asked.

He stood and spread his hands. "Probably not."

"Do you have an inventory of the animals here?" Martin asked.

"If I showed you a list, would you know whether it was complete?" Bartles countered. "It's not as though you could safely conduct a census, you know. Some of my pets are quite lethal and they are free to roam the grounds."

"How do you keep them from eating one another?" I asked, working my way down the row of cages. So far, out of eleven animals, I had only recognized three. It would take a specialist to tally them properly. Even then there would probably be gaps, considering that not all species found have been officially catalogued. I was a good example of that. It would not be surprising to find that some of Bartles's creatures were unknown to human science.

"Partly, it's a question of keeping them fed. That works for perhaps a third of them—they only kill to eat. Others are naturally territorial. That's a little more difficult. I have electronic fences for some, mechanical for others. There are a select few species that are intelligent enough to be trained not to attack. It takes a lot of work, but it's very rewarding."

And that's the way it went. We fenced verbally with Bartles for the majority of an hour, but learned almost nothing from it. In the end, he escorted us out to Martin's car personally. He took a whistle from a hook by the door—one of several—and blew the same two tones I'd heard before as he opened the door.

"I take it that the dachshund with twenty legs is one of the animals you've managed to train," I observed.

He nodded. "Quite a reliable creature, actually."

When he caught sight of Martin's car, his facial expression gave way to one of contempt for a moment before he noticed that I was watching him. He smiled

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thinly. "Well, I suppose that someone has to keep the old ones running."

As an attempt at diplomacy, it failed utterly. Martin is usually embarrassed about his car, but Bartles had obviously rubbed him the wrong way. "It runs, it's paid for, and it's mine," he said defiantly.

"Indeed," Bartles said dryly. He nodded curtly to us and said, "And now if you'll excuse me, I have other matters to attend to." With that, he turned on his heel and stalked back into the house.

Martin and I hastily got into the car, lest the guard animal arrive before we were safely inside. On the way back down the long driveway I said, "Martin, another angle has occurred to me."

He was wearing a faint frown—the one he puts on when he's thinking his way through something. "What's that?"

"Bartles almost certainly has help looking after his pets. We've seen no fewer than twenty or twenty-five animals today and there are certainly more that we didn't see. He can't run Liquitrans in addition to acquiring, feeding, and training all those animals."

Martin nodded. "I can see that. So you think we ought to find whoever helps him work his animals?"

I can't shake my head the way that humans can; I have no neck. I couldn't even turn my head to look at Martin. "No, it wouldn't be worth our time. I'm willing to bet that he has paperwork for every animal that the casual observer can see. He keeps the illegal ones hidden. His zookeeper will be among the most trusted of his employees if he has to keep secrets like that. But the zookeeper is likely to have help also. Someone who helps clean the cages and such. *That* person might not be quite so loyal. If we're careful, we might be able to find out whether there are any new arrivals."

Martin glanced my way. "Ah ha! So you think we've found his weakness. It's not that he has a gambling habit, it's that he wants to own the most exotic animals he can find. That's bound to be expensive."

"Exactly. We've found his passion. It's just a question of whether that will give us the entry we need to find what Deems Warden wants to know.

That night I padded silently back and forth through the darkened apartment while Martin slept. There was no obvious way to proceed with the case. Finally, in frustration, I went and stood in the corner behind Martin's recliner and descended into the trance state I use when I need to think more deeply about a case.

By dawn, I had come to some tentative conclusions and was trying to come up with a way to test them. My placid mental state was shattered by the sudden ringing of the telephone.

Given that Martin is incapable of carrying on a coherent conversation when roused unexpectedly from sleep, I answered. It was Pete Sims, our friend in homicide on the local police force.

"Victor," he began, "aren't you and Martin looking into something for Deems Warden?"

"Yes."

"He's dead. It's a little murky as to just how it came about. I thought you guys might want to know."

I thanked him and hung up, then padded into Martin's bedroom. He was snoring gently. I said, "Martin," in as gentle a tone of voice as I could manage.

The result was spectacular—far out of proportion to the stimulus. He rose bodily from the bed, arms flailing. As soon as his hands and feet could find traction, he scrambled backwards across the sheets until he fetched up against the wall, staring at me. "Don't touch me!"

"I didn't."

"I mean it!" he yelled.

"I wasn't going to," I said calmly.

He continued to watch me carefully, as though I was going to suddenly gain a thousand pounds and a mouthful of sharp teeth. When I remained my normal size for another sixty seconds, he relaxed sufficiently to grind out one word.

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"What?"

"Pete just called. Deems Warden is dead."

Martin let out a long, slow breath. "Why didn't you say so?"

"I just did."

"I thought you were going to roar at me again."

"I deduced that."

"You're not, are you?"

"No need to," I said. "You're awake."

He chuckled ruefully. "Right. I think I've used up a week's worth of adrenaline in the last two minutes."

"Do you want to drop by and see Pete?" I asked.

He thought about it for a moment, then nodded. "Yeah. This is one of those things that might be a coincidence, but probably isn't."

He took a deep breath and let it out, calming himself. Then he climbed out of bed and headed for the bathroom to shave.

He did not notice me padding silently behind him.

Life is full of small pleasures. Terrorizing Martin is one of them.

Pete Sims worked homicide, but when homicide turned to xenocide, or even if there just happened to be an alien species lurking in the background, he would call us in on a case so we could earn a nominal consulting fee. It wasn't enough to live on, but there had been times when it had made the difference between home sweet home and an eviction notice.

Pete had once had a full head of red hair, but those days were only a memory. His habit of running his hands across his noggin had uprooted the majority, and the survivors looked as though they wished they had somewhere to hide. I tried my best to subtly survey under his desk.

The scoundrel chuckled at me. "Give it up, Victor. There's nothing to eat under there—at least nothing that would interest you. The cleaning crew came through just after Memorial Day and carted off all those little tidbits you were saving until they were good and rotten. It'll be another month or so before we can ripen another crop of goodies for you."

I adopted a huffy attitude. "I don't eat food that's rotten. I eat food that is well-aged."

"Not rotten, eh? So, what do you call that ugly grayish-green mold that grows on food that sits in the back of the refrigerator too long?"

"Spice," I answered archly.

He grunted at me. "I prefer salt." He looked at Martin. "You want to tag along while I look into this Deems Warden business?"

Martin nodded. "Anything's better than being cooped up with Victor."

Pete regarded me with a raised eyebrow. "You boys been bickering again?"

"No," I answered quickly, innocence incarnate.

I could sense Martin coming to a boil beside me, so I decided to head him off at the pass, the better to put a positive spin on things. "Well . . . perhaps I've been a trifle over-enthusiastic about practicing my dinosaur sound effects."

"*A trifle over-enthusiastic?*" Martin spluttered. "After you—"

Pete then made a dreadful mistake. He asked, "What dinosaur sound effects?"

I demonstrated. At full volume.

All activity in the police department ceased. Heads popped out of offices and over the edges of cubicles. People stopped in mid-stride. One set of shoes, feminine, size seven by the sound of them, came running towards us in the pin-drop silence that followed.

"Oh, *Victor!* I knew that was you! It had to be."

And in that moment, I, serving as a catalyst, unleashed the third most powerful natural force on Earth: The attraction between Martin and the opposite sex. Only earthquakes and hurricanes can exceed it, and there are times when even that's open to question. And Marie,

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who worked up front in the police department, was an ongoing test case. After greeting me, she turned and flowed up against Martin, remaining fastened there in much the same way that peanut butter sticks to the roof of one's mouth. I took a ruler from Pete's desk and tried to slide it edge-ways between Martin and Marie. It wouldn't go.

"Better fit than the blocks in the pyramids at Giza," I commented to Pete. "Must be bonded at the molecular level."

Pete shook his head, chuckling at them. "All right, you two. We've got a dead body to investigate."

Martin peered at him around Marie's cloud of black hair with a disdainful expression. "The name is Bond . . . Permanent Bond."

Pete and I exchanged looks. "Tell you what," I said, "let's you and me go, and if Martin and Marie manage to produce a litter by the time we get back, we can pass around a hat to collect suggestions for names."

Pete rose and I followed him out the door. We'd made it nearly all the way to his police cruiser before Martin caught up with us. He was wearing a goofy grin.

"Are you going to be able to concentrate?" Pete asked him.

"Sure."

"On the case?" I asked.

Martin blinked. "Case? What case?"

I turned back to Pete. "I rest my case."

Deems Warden's domicile shared the same relationship to a normal home that a skyscraper does to a grass hut. I would have been disappointed if it had been a whit less than Evan Bartles's estate; yet it was different in so many ways that a direct comparison was difficult. It was more subdued in style, without being traditional. More elegant grounds, for one thing, which, fortunately for my peace of mind, were not furnished with hot and cold-blooded running predators.

The gardener, rake in hand, was standing beside the door of the police cruiser before Pete even managed to get the engine turned off. Pete opened his door in the middle of a sentence already in progress. ". . . And I want to know what you intend to do about it!"

Taking a deep breath, Pete pushed out of the car before saying anything. "Sorry, but I missed part of what you were saying. Something about what you intend to do about it."

The gardener blinked. "What? No, no, no . . . I said—"

Pete nodded as though he understood completely. "I'll start by looking at the body. Can you take me to Mr. Warden, or should I wait for someone else?"

The man began spluttering, his demands unacknowledged. "But . . . well, all right. Come with me."

Along the way, he persisted in giving his version of what happened. Not so much what had actually happened, but his ideas as to what *probably* had happened. Or *might* have happened. Or *could* have happened. All mutually contradictory. No wonder he was so talkative; he had more theories, hypotheses, and conjectures bottled up inside of him than any three average human beings could hold. One thing about humans—they're not shy about letting you know how clever they are, particularly when they're dead wrong.

It turned out that Deems Warden was on his back in a room that—well, in a normal home it might have been a study, but the gardener had already pointed out the study as we went by, so I wasn't sure what the purpose of this room was. Perhaps a sitting room, or a smallish library reserved for use only on rainy Saturday afternoons; the rainy Friday library being elsewhere, no doubt.

Needless to say it was the body that occupied our attention. Indeed, it was hard for it not to. Contrary to popular opinion, most peoples' faces relax as the final breath leaves their body. Afterwards, there's no more expression remaining than if they were asleep. Deems

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Warden's face was the exception. Equal parts horror and agony in extremis.

As much as I like Martin, Pete, and Marie, humans are just another alien species to me. Their ability to emote using their facial muscles isn't unique, but it has developed to an unusual degree compared to other beings. It seems to be an evolutionary adaptation to the amount of hair on their simian ancestors' faces. Exaggerated expressions were more easily read through all the facial fuzz. Along the way, humans lost the excess foliage, but retained the facial expressions.

Deems Warden's corpse was trying very hard to tell us something. And that something—the last message he would ever impart—was that whatever killed him involved more pain than any sentient being should be asked to endure. Even though I'm generally immune to the deaths of humans, the frozen mask of his face filled me with the need to continually look behind myself, as though a monster was stalking me.

I steeled myself and approached the body. "Any wounds?"

"Head wound," said Norm Pasky, an officer with a jaw the size of a car bumper. "According to the doc, it might have given him a concussion, but wasn't enough to kill him."

I looked at Pete. "Mind if I examine him?"

He gestured for me to go ahead, then turned away. Whether he was disturbed by the fossilized scream on Warden's face or simply being squeamish about my investigative procedures, I didn't know.

I uncoiled a few feet of tongue and began by probing the scalp of the deceased. It didn't take long to find a bloody spot about midway between his ear and eye on the right side. The bone beneath felt reasonably solid, which led me to conclude that the medical examiner was probably correct.

"Sir? *Sir!* He . . . it, I mean that *thing* is using its tongue!" Pasky's voice was quavering with strong revulsion. His finger was trembling in my direction.

Pete turned, glanced at me, then turned his attention to Pasky. "That 'thing' has a name, Norm, and you should hope that if anyone ever has cause to investigate *your* death, that they'll be half as thorough as Victor. He's got more ability with that tongue of his than most of us do with two hands. You'd best hold *your* tongue."

"But it ain't *natural*, sir!"

"It is to him."

I got on with it and tried to ignore Pasky's complaints. When I finished with the head, I went on to the rest of the body, finding virtually nothing of interest. Here we had a specimen of male Caucasian *Homo sapiens* in the prime of life who was now no more than a prime cut of meat. Excepting the bump he'd sustained to his head, there wasn't a thing wrong with the man . . . if you overlooked the fact that he was dead.

I waddled over to where Pete was taking a report from another officer who had been interviewing the household staff. Pete held up his hand to stop the officer's recital. "Yes, Victor? Did you find something?"

"No. There's no bullet wound. No stab wound. No evidence of poison. No—"

"Wait a minute . . . how can you say there's no poison?" he asked.

"His blood tastes normal." Behind me, I heard Norm Pasky retch and leave the room at a dead run. "Not all poisons cause detectable changes in the taste of human blood, but I'd be willing to go on record as saying that it's most unlikely that he was poisoned."

"How do you know how his blood tastes?" the officer asked, fascinated in spite of himself.

"The head wound. Though it wasn't enough to kill him, it did break the skin," I answered.

"How did the head wound come about?" the officer prompted.

"Hit his head on the way down, I

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think. You'll need a powerful magnifying lens, but there are two hairs and a minute speck of blood on the corner of the table at his side."

Martin came up. "How about the expression on his face?"

"I don't like it," I admitted, "but it doesn't really tell us anything in the medical sense. We need motive, weapon, and opportunity, not to mention a suspect. At present, we have nothing; unless you want to nominate Evan Bartles as a suspect. After all, Warden seemed to think he'd been up to one or more types of skullduggery." This was the point where Sherlock Holmes might have smoked his pipe for a while as an aid to concentration. Never having thought that smoking was a worthwhile thing to do, I had to content myself with scuffing my feet back and forth in the sumptuous, thick carpet while I thought. It didn't exactly stimulate any deep thoughts, but it felt good, though I paid for it with a nasty static shock the first time I touched metal afterwards.

It would have been nice if we'd been first on the scene. I might have been able to detect something in the air or perhaps in the carpet; some smell, taste, or footprint. Unfortunately, every officer in the county had tromped through the room before we got there and it would be a miracle if there was any evidence left at all. Police have this unfortunate habit of straining at gnats and swallowing camels that makes investigation difficult once the heathen hordes have had their way with a crime scene.

I wandered around the room, looking at the window, the door, the orientation of the body . . . all the while learning nothing. The only thing I found that no one else had was a vilta cowering under the end of the couch, no doubt terrified by all the huge feet pounding the floor just inches away. "Martin, come get this poor creature before someone steps on it."

Martin made a face. "You get it."

"I can't," I explained, "because the only way I can pick it up is with my tongue and that would only make it more terrified. It would think that I was going to eat it."

With a sigh, Martin came over, got down on his hands and knees, and pulled the cone-shaped creature out to where he could get a grip on it. He then got to his feet and studied it for a moment. "You know, this thing's kinda cute, in an ugly sort of way."

I cannot shrug as I have no shoulders. "Maybe it'll keep the bugs under control. Ask it if it'll eat the roaches in our kitchen."

He gave me a scowl. "You ask it. Alien languages are your department, being one yourself."

"Depends on your point of view. To me, *you're* the alien," I told him. Then I went to talk to Pete, leaving Martin holding the vilta, looking as though he were afraid it might excrete in his hand.

The obvious next thing to do would be to talk to Evan Bartles, but it was so obvious that it had even occurred to the constabulary. Nothing would be more superfluous than to have Martin's collection of rust parked at the end of a row of police cruisers in Bartles's driveway.

I wondered what the police would think of the exotic pets.

Martin and I settled for looping past a drive-through on the way home so that he could pick up a serving of fried grease with extra salt. He solemnly assured me that his arteries were in danger of softening, ignoring me when I told him that the only thing he had to worry about was going soft in the head. He then slathered ketchup on his french fries and asked, "So what do you think killed Deems Warden?"

"The autopsy should prove to be interesting reading," I said. "It could be anything from a stroke to an exotic toxin derived from the gills of a mushroom that only grows on the north side of one mountain in Finland."

"I thought you said that it wasn't poi-

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son."

"I said that it was unlikely, not impossible."

He mulled that over for the next two stoplights. "What do you think the chances are that it was a natural death?"

"*Very* convenient timing. I admit to leaning towards murder with Evan Bartles as the answer to the whodunnit question. The howdunnit, however, is a bit of a sticking point."

"Assuming that he did it," Martin put in.

"There is that," I admitted.

"Want a french fry?" Martin offered.

"Not right now, thanks. If you don't want them all, I'll take a look at them in a month or two."

He shuddered and popped another fry into his mouth. "Why you think moldy food is tolerable is beyond me."

"Try it sometime, you might like it. Adds flavor," I said.

He grimaced. "I don't deny that it adds flavor, Victor. It's a question of what ***kind*** of flavor." His expression soured, as though he'd remembered something unpleasant. "Well, there is that cheese I bought back in April. The last time I looked at it, it looked like an escapee from a high school science fair project."

"I'm drooling," I told him. "Tell me more."

Martin chuckled. "Mostly that gray-green mold, but I think there are a few veins of the white kind."

"Who knows, you may have something that can compete with Camembert."

"If I sell it, you'll go hungry," he reminded me.

"We gastronomes face difficult choices," I sighed.

As soon as Martin went to bed that night, I dropped into my problem-solving trance state once more. I had the nagging suspicion that I was overlooking something obvious. It was going to be deeply embarrassing if the police managed to solve the problem via brute force before I managed to finesse the blasted thing.

It was nearly four in the morning before I got anywhere, and even then, it was far from a certainty that my idea was worth anything. I waited patiently until Martin's nominal getting-up time before entering his room.

"I'm up, I'm up," he grumbled, his voice muffled by virtue of his face being planted deeply in his pillow. His arms were flung wide on the mattress. How he managed to breathe like that was anyone's guess.

"Riddle me this," I said.

He flopped over onto his side, regarding me with unfocussed eyes. "Riddles? Are you out of your mind? I haven't even got my hair combed yet."

"Comb it, then, but see if your hair sticks to the comb," I said, and left him looking very confused indeed.

Pete Sims had the autopsy report when we dropped by his office later in the morning. I nabbed it before Martin could get his greedy fingers on it and flipped quickly through the pages. In short, it said that Deems Warden had died of unknown causes.

"Excellent!" I said smugly. "Just as I expected."

"What's excellent?" Martin asked, leaning forward to take the report.

"It says—in highly abstruse terms, of course—that the man had no reason to die."

Pete's face twisted into a highly unlikely expression. "And that's good?"

"In a manner of speaking, yes. If Warden didn't die of anything identifiable, then it's up to us to decide what actually happened."

"Victor, you're not making any sense," he complained.

"All in good time," I said. "First, I need you to get someone from Liquitrans on the line. I have a question or two that need answering."

Martin regarded me with profound

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suspicion, as though I was simply wasting their time. Pete, however, was more trusting, and did as I asked.

I had to wade through four different layers of people before I got to someone in the technical division of Liquitrans, but the answers were as I had expected. I thanked the technician and hung up the phone. Then I stood there tapping my foot, listening to the soft little noises it made as it hit the floor.

"Well?" I asked.

"Well what?" Martin asked, confused.

"When is one of you fellows going to get around to asking me if we need to be somewhere?" I said.

Pete sucked his teeth for a moment before finally getting around to saying, "Uh, Victor, is there somewhere we need to be?"

I produced an impatient snort. "Naturally. So if one of you gentlemen would kindly get his car keys, I believe we can wrap this case up, possibly in time for lunch. And I'll warn you . . . I'm *very* hungry."

Shrugging, Pete said, "Victor, if you can pull the rabbit out of the hat, we'll go on a tour of every back alley in town, looking for the most rotted lettuce there is."

"Deal," I said. Ignoring their flabbergasted looks, I marched out the door.

Pete drove us to a dingy alley behind a row of greasy spoon restaurants offering anything from American country cooking to Chinese to Italian to Thai. "Wait here," he said, and walked to the mouth of the alley, turning towards the front of the nearest restaurant. In just over three minutes, a man came out the back door with a garbage pail. Moments later the door to the Chinese restaurant next to it sprang open and a wizened old man appeared with a bucket full of refuse. Then another door down the row popped open and a young girl appeared, lugging a cardboard box full of old vegetables. And so it went, as though by magic.

Pete sauntered back around the corner a few minutes later, looking smug. "Told 'em the health inspectors were on the way," he said. "Looks like it worked, eh?"

"I'll say," I said. For the next little while I was busy picking through the bounty, choosing the best morsels. Being adapted to eating rotting food has both advantages and disadvantages. One disadvantage is human repugnance to eating anything that isn't what they call fresh, but that's offset by the fact that I'm really quite cheap to feed.

After I had gorged myself to repletion, I burped contentedly and settled back against the fender of Pete's police cruiser. "All right. Ask away. I will reveal all."

"Evan Bartles," Pete began.

"I was far from sure that he was the culprit, but it was as good a starting point as we had, so I went with it."

"The vilta," Martin said.

Call it conceit, call it pride, call it ego, but I've got a smidgen of it, and it probably showed in that moment. "It was, pretty much by definition, the one factor the official investigators had overlooked, hence it just about *had* to be important. When I found it hiding under the couch, I didn't put things together immediately, but it did strike me as an odd creature to find in Warden's house."

"Why so?" Pete asked. "Bartles was breeding them. It wouldn't be all that unlikely for him to give one to his partner."

I said nothing for a moment or two, drawing out the moment. "Ah, Pete, but that's exactly what was wrong with the whole picture. Bartles was breeding them for pest control. Tell me . . . when was the last time you saw a multi-million dollar mansion with a roach or fly problem?"

There was an instant of blank astonishment on his face, followed by the beginnings of comprehension. "And that led me to consider other reasons why such a creature as a vilta might be in Warden's house. Combine that with the fact that Warden died of mysterious

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causes, and what do you have?"

Pete shrugged, mystified. "I dunno."

I sighed. "Okay, let me give you another piece of the puzzle. One of the first things we discovered about Evan Bartles and Warden Deems was that they each had experimental circuits implanted in their minds to increase their brain power. That set me to wondering whether there might be a connection—in the electronic sense—between the vilta and Warden's death. Sure enough, I verified this morning that liquid transistors have the same weakness that MOSFETs do, they're both sensitive to static discharge."

"What the hell's a MOSFET?" Martin demanded.

"One of the types of conventional solid-state transistors. The mere scuffing of feet across a carpet can produce a static discharge that can absolutely destroy a MOSFET."

Pete was still lost, but I could see Martin catching on. "Wait a minute! And the vilta used electric shock to stun its prey! Right?"

"Exactly."

Pete took up the train of thought from there. "And if the liquid state transistors are susceptible to the same sort of shock—"

"Even more so, according to the engineer I spoke with this morning from your office," I put in.

"—then if the vilta zapped him, it would literally fry his brain," he finished.

"Bingo," I said. "Like handling kittens—no matter how careful you are, sooner or later you're going to get scratched. Bartles had told him to pick up the animal and cuddle it so that it would get used to him. Given how defensive they are, it was only a matter of time until the vilta retaliated with a shock right to his head. The Liquitrans IQ circuit was hardwired into his brain—so when it went, it backfired and discharged all the stored energy it held into his organic brain. Every neuron firing at the same time. Death would have been agonizing."

Martin shuddered. "Poor guy! Imagine how that must have felt . . . no wonder his face was so contorted."

Pete asked, "How did you get Bartles to own up? All he had to do was stonewall and he would probably have gotten off."

"Like many an egomaniac, he was only too happy to explain how clever he'd been. All I had to do was prime the pump."

"I wondered why you insisted on talking to him alone," Martin said.

"It had to be just the right audience," I said. "A police officer clearly wasn't going to work, nor would a private eye . . . but an alien proved to be just the right balance of understanding and disinterested appreciation of his genius. I praised his cleverness until his ego got sufficiently revved up. After that, it was easy."

"And you figured all this out just from seeing the vilta," Pete said, shaking his head.

Humility afflicts me when I least expect it. "Well, I did get one little prompt," I admitted.

Martin frowned. "And what was that?"

"You see, I was standing there rubbing my feet in that really deep carpet. It felt wonderful, so I kept doing it. Then I went to open the desk drawer . . . with my tongue, of course."

Pete's eyes opened wide. "Which had a brass handle."

"And you got a shock from all the static that had built up while you were scuffing your feet on the carpet," Martin added.

"And so you see," I said, "all the time, the answer was right on the tip of my tongue!" ■

(EDITOR'S NOTE: Victor and Martin have already previously worked together in "Tongue-Tied" [June 2002], "Food For Thought" [November 1999], and several other stories.)

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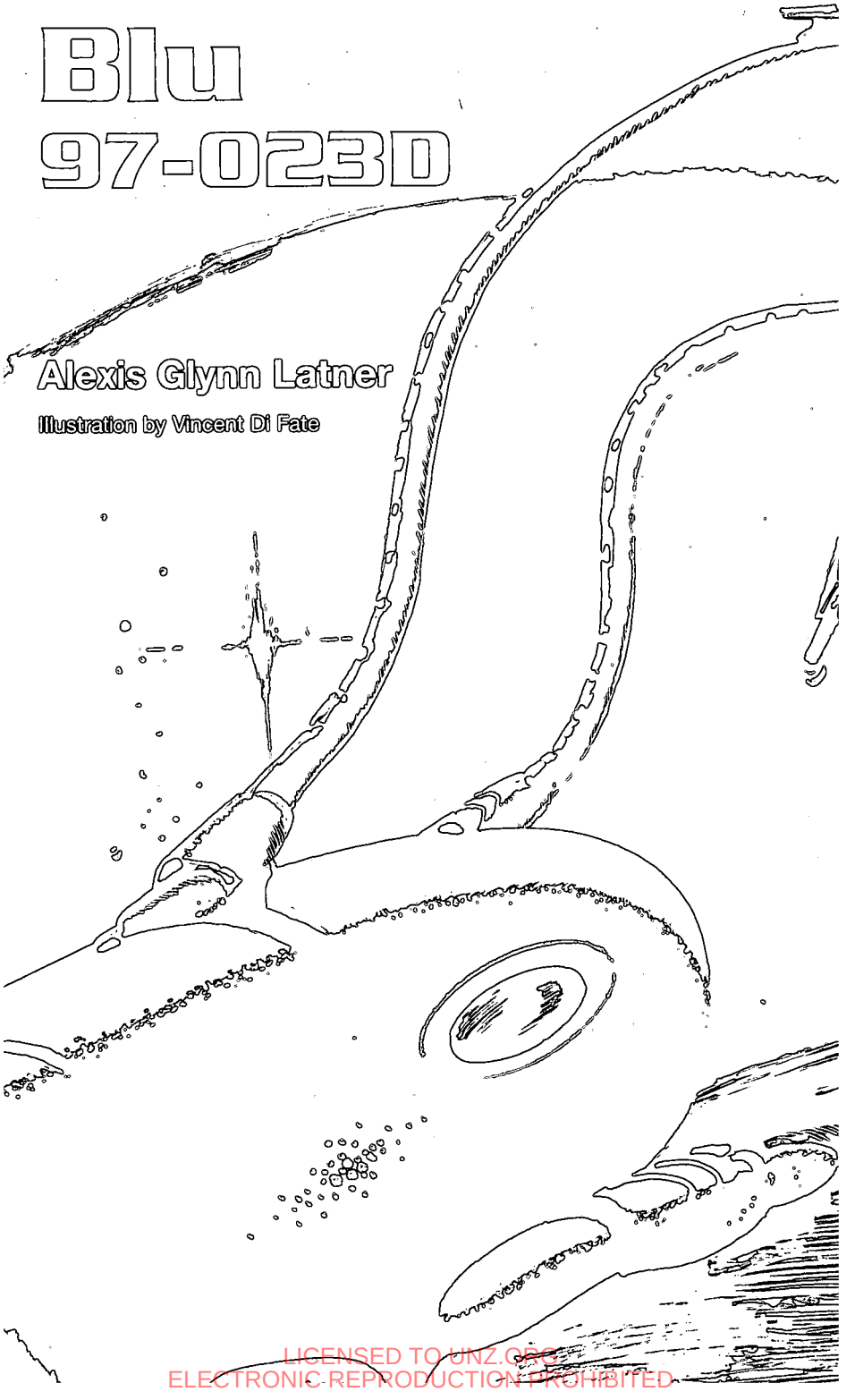
Illustration by Vincent Di Fate



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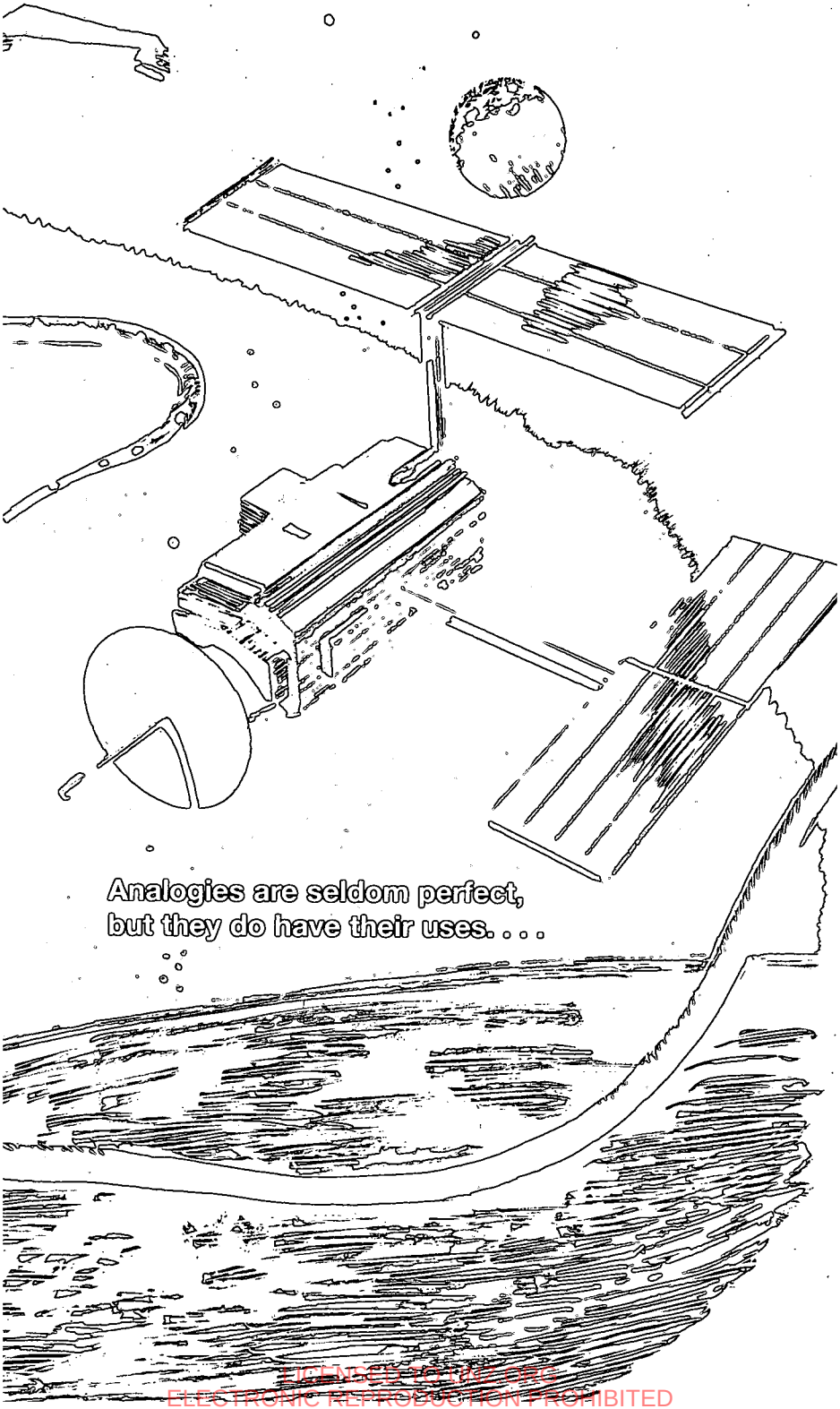

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Two weeks ago this morning, his life had turned inside out like a winter coat. Instead of having a soft, insulating inside layer, his life felt cold, stiff and awkward around him. He had only been back at work for three days. When the telephone interrupted his doleful train of thought, he reached for it eagerly. "Orbital Debris Project Office—Jack Haze."

The voice on the other end announced, "My canary is dead!" and then waited for Jack to reply, as if expecting Jack to infer the rest. Which, in fact, Jack did. The few words were enough to recognize the harsh, famously taciturn voice of Sol Sugarman at the Boeing satellite factory in Los Angeles. Sol's "canaries" were state-of-the-art telecommunications satellites, one of which had evidently fallen silent. Sol had called Jack because he thought a collision with orbiting space junk had killed the bird.

If so, it was an extraordinary disaster. The only spacecraft ever disabled by orbital debris had been a French satellite that had its gravity boom broken off by a piece of an exploded Ariane booster. No complete loss of a spacecraft had ever been conclusively attributed to orbital debris—not even *Columbia,* although investigating the possibility had given Jack the most harrowing days of his career.

Past Sol's intense silence, Jack could hear a sharp conversational buzz in the background. Sol's office was full of engineers and managers, upset about losing their very valuable bird. "Did you get any status reports after it started failing?"

"ZILCH!"

"Give me details."

Sol rattled off the orbital specifics of the dead canary and the Universal Time of its death and signed off by slamming down the phone on his end.

Dr. Yvonne Norhill, who shared Jack's office, gazed at him with an eyebrow arched inquiringly.

"Boeing just lost contact with one of their newest comsats," Jack explained. "Those are remarkably failsafe spacecraft. They fail into modes where you can still contact the satellite and troubleshoot. So they think debris knocked it out."

"Can something big enough to knock out a bloody satellite be unknown enough to take you by surprise?"

"Not exactly," said Jack. "It might have been mistagged, though, if something else crossed its path when it was being tracked to determine the orbit."

"Oh, right, it's hard to tell what's what, and they're not like a lost pet—none of them wear a collar that says 'I belong to So-and-So and my name is Blu.'"

"Blue?"

"Half the dogs in Australia are named Blu, B-l-u. Had one m'self." Her fingers unerringly tap-danced across her computer keyboard. On sabbatical from Sydney University, she was exceptionally bright. Not many researchers could tackle creating a computer program for optical detection of orbital debris. She might well pull it off, which would dramatically advance the mission of predicting and quantifying impact dangers.

Jack opened his orbital debris database and pored over it. He discovered nothing listed that could endanger the Boeing bird, that he had failed to warn Boeing about.

Jack imagined the gleaming comsat gliding in geostationary orbit, and a dark, ragged, nameless piece of space junk in an orbit that intersected the satellite's. The debris silently coasted into the satellite. Circuits sparkled, fuel from broken lines spurted in glittering jets. Secondary bodies spun away from the collision.

Jack felt strangely cheered. Since his wife of forty years died in her sleep two weeks ago, he had missed her and mourned her every hour of every day and night. Given agonizing personal problems, an impersonal disaster can be a Godsend. Sol's fine-feathered canary was a bloodless fatality, a no-fault disas-

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ter, and just what Jack needed to stave off self-pity.

Haystack Radio Observatory in Massachusetts agreed to look for the pieces when the canary's orbital plane went over their radar beam. They had an MIT graduate student to do the tedious work of analyzing the radar return to understand the findings.

Jack automatically picked up his chipped but favorite old STS-3 Shuttle mission coffee mug. Then he scowled at it.

"Care for a cup of coffee?" Yvonne rose from her chair.

"Yes," Jack said, surprised and grateful. He didn't like going into the Exploration Science Office lately. The palpable sympathy of the pretty young secretaries unnerved him.

Returning, Yvonne placed the brimming mug and a small stack of mail on Jack's desk. She was forty-something, thin, sharp-featured though quick to smile, intense and sometimes abrasive. Jack had been less than thrilled when she set up shop in his office two months ago. But office space here at Johnson Space Center was government issue, and as Spartan as the furniture; there hadn't been any other place to put Yvonne while she worked on her optical detection program. Since he returned to work this week, she had given him an unvarnished, bracing kind of sympathy, and Jack was now glad to have Yvonne here.

Sipping coffee, Jack checked his e-mail inbox. The senders were mostly NASA colleagues, including several of the usual suspects for sending superfluous e-mail. But one name jumped out at him: Gennady Khlebikov. G.K. was the orbital debris man at the Russian Space Agency, Jack's counterpart. G.K.'s e-mail said, *An unprecedented disaster has struck one of the Molniya which stopped functioning 1330:14:55 Universal Time. Now it is dead totally. We know of nothing to hit it. Do you? Oddly no pieces are detected.*

The Molniyas were the Russians' constellation of telecommunications satellites, with a high-latitude orbital apogee over Siberia. The Russians wouldn't admit that those aging birds teetered on the brink of malfunction and obsolescence. For the record, Jack checked the database. Nothing listed looked like a plausible threat to the Molniya. That came as no surprise: "no pieces" was a dead giveaway that orbital debris hadn't smashed the Molniya to smithereens. It probably died of old age.

A couple of hours later, the Haystack Auxiliary radar, HAX, reported no sign of unlisted objects related to the location of the Boeing satellite. It couldn't locate the canary itself, either.

But HAX had a small beam width. Sol's canary had been loaded with pressurized cryogenic fuel for its positioning jets. Jack suspected that if it took a hard hit, it broke up explosively. The point where it should have been in its orbit would be the empty center of a wide dispersion of secondary bodies.

Unlike Haystack, the Naval Space Command Radar Interferometer was a fence sketched across the United States at 33 degrees North Latitude. A fair fraction of all the orbital debris in existence went over that fence at regular intervals. So Jack called Dahlgren, Virginia, to ask the Navy to locate pieces of the Boeing bird and the Molniya.

The Navy would be happy to help. They usually were, where Russian satellites were concerned. The Cold War hatchet had been buried in a shallow, well-marked grave.

"I better pack it in or I'll be late to rowing," said Yvonne.

"Rowing?"

"I've joined that club on Clear Lake—even though it's not a lake and not clear! I'd rather scuba dive. But not here—not after I've dived on the Great Barrier Reef, with a thousand shiny fish dancing around me, and the corals brim full of

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life. . . . Anyway, rowing will be a good change from work. You need a hobby too," she added on her way out the door.

Building 42 grew quiet, no more voices and doors closing out in the hallway. Jack glanced out his office window. Swarming with cars and pedestrians at 5:00 PM, the whole Johnson Space Center campus had emptied within an hour. A lone rabbit grazed on the expanse of lawn.

As a young man, Jack had wanted to be an astronaut. Failing the vision part of the astronaut candidate examination ended that dream. But he'd found a position at the space agency anyway. He stuck to it through three decades of routine bureaucracy punctuated by the two immense tragedies of *Challenger* and *Columbia*. Jack had always had Milly to balance out his life.

All of a sudden, he wanted to leave the cold mathematical dance of orbital debris for the next generation. He wanted to scuba dive, float in the ocean, surrounded by a thick bright web of life, and just watch the fish dance.

A return call from the Navy jarred him back to reality. *No pieces*, said the Navy. No remains of the canary and nothing left of the Molniya either. They'd continue to look.

Odder than ever! Two telecommunications satellites had fallen silent within 12 hours of each other, and neither the Russian military, nor MIT's Haystack, nor the Navy radar saw any pieces. The Molniya had been at a much higher altitude and latitude. It was inconceivable for a huge piece of orbital debris to vaporize first the Molniya then the canary. Nothing that big and explosive was undetected.

But Jack did not believe in spectacular but meaningless coincidences. He pushed some papers aside in order to position the crystal ball on the center of his desk.

The clear acrylic sphere contained an opaque Earth surrounded by a cloud of tiny dots: a three-dimensional rendering of the image of Earth in its cloud of orbital debris that was featured on the Orbital Debris Project web page. Most of the dots clustered in the mid-latitudes of the planet. A few strings of the dots ran up over the poles. The dots gave a static, stylized idea of the dynamic gauntlet of debris that every spacecraft had to run. In reality, there were a hundred thousand pieces of detectable debris in a fluid latticework of orbits ranging from two hours to two days.

Milly had given him the crystal ball on his 30th anniversary with NASA. She got a dozen colleagues and secretaries to chip in for it. Everybody loved the idea of giving Jack a crystal ball, because the challenge of predicting orbital debris hazards was so formidable as to almost require magic.

Jack had never told anybody that the crystal ball *worked*.

Gazing at the ball, Jack stopped thinking. The human mind can make intuitive leaps beyond the pale of any computer. Especially if the human's mind has intimate familiarity with an enormously intricate problem in continual flux.

At 7:35 PM California time, Jack was mildly surprised to reach, not voice mail, but Sol Sugarman himself, still at work. "Any word from your canary?"

"Hell, no!"

"I have a hunch, tell me if I'm right. Actually, I'd rather hear I'm wrong. Did you lose another bird today?"

"What?!"

"I've got your inventory in front of me. The one I'm thinking of is BO 186."

There was a silence. "We were just discussing that. What did it?" Sol demanded.

"It's not definite yet—I've got the Navy in on the investigation," Jack improvised.

"So what's indefinite?" Sol shot back.

"Sol, I heard from G.K. earlier today, and he said a Molniya failed. There's trajectory from that to your canary. The tra-

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jectory goes on to a near intercept of the position of BO 186 in its orbit at the time."

"A near intercept doesn't mean anything."

"Yes. It would have had to change course slightly."

"Orbital debris orbits. It doesn't change its own course!"

"Tell me about it!" Jack parried. "But there's BO 186."

"No, there *isn't* a BO 186 now. That's why I'm taking you seriously."

"Did it go like the first canary? Sudden death?"

"Yeah. Maybe Spectrum is playing hardball," Sol muttered darkly. "Be advised that we're real interested in whatever you find going on out there. Keep me posted."

Jack finally left the office at 9 PM. His thoughts stayed behind, though, and he walked down the hall with its space-poster-decorated walls in an absent-minded daze, until it registered on him that he had heard unusual sounds in the Exploration Science Office. He backtracked and looked in. Invisible but audible, something whirred across the floor behind the receptionist's desk.

Jack circled around the desk. Suddenly a small robot dodged around Jack's shoes on its way toward a wadded piece of paper on the floor. The robot extended a claw to seize the wad. Then it did an about-face and zipped to the trashcan in the corner. The claw telescoped up above the rim of the trashcan, swiveled over the can, and released the wad into the can.

The robot was about half a foot high and as wide as a serving plate, which its concave carapace faintly resembled, complete with something on it. The carapace held two pens, three paper clips and an empty CD jewel case.

Jack reached for the nearest telephone and called the Automation Robotics Lab. He was not surprised that somebody answered the phone at once. "Your janitorbot is wandering around in the Exploration Science Office," he said.

"Janitorbot?"

"Yes, your experimental janitorial robot with the trash and treasure sorting algorithm. I read about it in the *Space Center News Roundup* last month."

"Did you say you're calling from Building 42? Wow! It really wandered a long way!"

"Not on its own, it didn't! The odds against it randomly wandering across the distance between these buildings, and into this one, are astronomical. Whichever one of you carried it over here for an unauthorized workout in unfamiliar territory had better come get it before I call Security."

"Okay," the voice on the other end said meekly.

Beneath a secretary's chair, the janitorbot seized a stray Post-It note, which it triumphantly carried to deposit in the trashcan. Jack had to laugh at the unauthorized but amusing little machine. He'd tell Milly all about it—

—No. He wouldn't.

This was the first time he'd forgotten her death completely enough for remembering it to blindside him. It hurt like hell. Reeling, he clutched at the orbital debris problem, as though it were the one fixed point in his world. Jack walked out into the humid night air toward the parking lot, struggling to understand three dead comsats in less than twenty-four hours.

If the news media got wind of it, headlines would shriek, "Junk in Space Strikes Again!" Most reporters and politicians, and even some people in the space business, didn't understand orbital debris. They thought space junk could obliterate spacecraft.

It didn't work that way. Unless the Navy eventually found some pieces, it wasn't orbital debris that killed the Molniya and Boeing's bird.

At home, the living room couch waited for him, the afghan draped over it looking invitingly rumpled. He just had

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to fill out some forms from the insurance company. It was onerous paperwork, repetitively asking the same questions, such as "Relationship to the Insured." Husband. Husband. Husband. Then on page seven, Jack realized that he was doing it wrong. They didn't want *Husband.* They wanted *Widower.*

Utterly demoralized, Jack sagged into the couch. The last night he'd slept in the bedroom was the night his wife died in her sleep beside him. She'd had health problems for months. But he thought she was finally getting better.

Heart attack, the doctors said, a shock her fragile body couldn't take. It still appalled him how unviolent it had been. He'd felt a quiver run through her, he'd heard a faint gasp, but before he fully awoke, she was gone. He remembered calling 9-1-1, and the paramedic's brief, brutal attempts to revive her, jaggedly, like a waking nightmare.

Jack's tall frame fit on the long couch. That didn't help him now. As wide-awake as though lying on a bed of nails, Jack's mind fugued toward his work.

Three missing satellites made no sense. Orbital debris hadn't taken them out—orbital debris didn't work that way.

Maybe somebody was stealing satellites. . . ? That was a wild, insomniac-at-midnight idea. But Sol Sugarman had hinted as much, Jack realized with a start.

Leafing through the *Aviation Week* magazines piled under the coffee table, Jack found several articles about Spectrum, an Asian telecommunications consortium backed by three corporations and two governments, none of which had a reputation for fair play. He began to believe that stealing or sabotaging Boeing's birds might, conceivably, be worth somebody's while, at least if the somebody happened to be an aggressive global telecommunications consortium.

But why bother the antique tin can, Molniya? There was a venerable rumor that Russian satellites had proximity fuses and would explode if anything intercepted them in orbit. The Russians had been paranoid about Space Shuttles having the capability to bring satellites back to Earth. Anything Russian would represent possible risk and little gain to Spectrum, even if Spectrum were squarely behind Boeing's problems.

Meaningless coincidence might have reared its ugly head after all, Jack thought. He snapped off the lamp.

Craning his neck to see past the foliage on the potted ficus tree, Jack looked up through the living room skylight. It framed a dark night sky with faint stars. Up there, as invisible as the glass, Earth's orbital debris whirled merrily, outgassing, freezing, baking, breaking.

The parts count always goes up with orbital debris. Not down.

Yvonne zoomed into the office early and discovered Jack already at his desk. "Had insomnia?"

"Yvonne, I need your help on something."

"Long and hard or short and sweet?"

"Long and complicated."

She dragged her chair over.

"I woke up early and couldn't go back to sleep, so I came in and found some really interesting e-mail from the Mountain—the U.S. Space Command."

"That's the mob in Colorado who track satellites and orbital debris?"

"Right. Last night somebody under the Mountain discovered a piece of orbital debris missing."

"Missing? How'd they know one of a zillion bits of rubbish wasn't there?"

"They keep close tabs on debris that might endanger any Air Force spy satellites. Somebody looked at the updates on a piece of debris of concern, and saw a string of zeroes. The updates had stopped. So now it's one for three. Three real satellites are missing and presumed dead—and one old Long March rocket upper stage is missing too."

"Crikey! Does it make sense to you?"

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"Not much. But could you do a computer analysis to come up with a trajectory? I'd like to predict the next event."

"Even if you're not sure what we're predicting?!"

"Just look at bigger pieces, the ones above twenty centimeters across," Jack coaxed. "And approximate freely."

"Nine thousand things whizzing around the planet in all kinds of orbits and you want me to connect the dots! Jeez!" she complained, with a cheerful glint in her eye.

Just before noon Yvonne announced, "Here's a path in space and time." She had it visualized as a line arcing from the Molniya, high over Siberia, to the canary and on to BO 186. "And look, it extrapolates right on to this object. Whatever it is, I'd give it six to one odds of being next in line."

"89-181A-3. A daughter body from the breakup of the booster of an Ariane rocket launched in 1989." Jack was already speed-dialing Haystack. "There's an impending collision between two pieces of orbital debris," he told Haystack. "I'd like you to image it. This might be a windfall of data on impact dynamics."

"Cool!" said the grad student at Haystack, whose name was Jin-Chu Wang. "I'll contact you as soon as I have results. Bye."

Yvonne stared at her computer workstation. "What I've got here is not a very straight path. You did say to approximate freely. It's a bit erratic, actually."

Jack nodded. She had confirmed his crystal ball intuition, he thought with grim satisfaction. Orbital debris doesn't change its own course. But this enigma could do just that.

Images from HAX sequenced across the monitor of Jack's computer workstation. Jin-Chu's face occupied a window in the monitor. The digital camera perched on the monitor reciprocated with a live image of Jack and Yvonne that went back over the Internet to Haystack.

The radar image was a blocky shape painted with false-color amber flecks: low-resolution radar pointillism. Jin-Chu explained, "Look, that's the target object. No resolution on its details—sorry—radar just sees blobs, but we could learn a lot from the movement after the collision when blobs fly everywhere. Now there's the intruding object." It was a sparkling pointillistic blob, moving relative to the target. "But look! The second guy, the intruder, changes course. It accelerates away and we don't see it any more!"

"Woo!" said Yvonne.

"Why did it do that? What is it?" asked Jin-Chu.

"Ah. I show it listed as 97-023D," said Jack. "An old Long March upper stage. It's disintegrating and releasing gas at erratic intervals, so it changes course."

Yvonne had protest written on her face. Jack made a calming hand motion out of range of the digicam.

"Bad luck," Jin-Chu sighed. "My dissertation could have used collision data."

When the disappointed Jin-Chu Wang signed off, Yvonne said, "You told him the designator for the one the Mountain noticed missing—the Long March piece! It didn't just go walkabout y'know! There's a path from the Russian satellite, to the Boeing comsats, to the Long March piece, to that non-event just now."

"Yesterday Sol Sugarman hinted that one of Boeing's international competitors might have sent up a satellite-stealing spacecraft. Maybe it knew it had been seen as soon as the radar beam hit it. Or maybe it's semi-autonomous and it's learning the difference between orbital debris and valuable satellites."

"Satellite-stealing spacecraft? Are you serious?"

"I know. It's unheard-of. But I take a hint from Sol as seriously as I'd take a feature article in *Av Week*. Sol's got the highest signal-to-noise ratio of any man

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I've ever met."

"A robotic spacecraft would not have a straight, inertial trajectory," she mused. "Not if it's got steering jets and it's making course changes."

"Exactly. It makes a kind of sense. But I don't want to tell that to Building One. They might say the mental strain of bereavement was getting to me."

"It has been, but not like that," Yvonne agreed.

"So in my daily activity report, the object that appeared on the verge of colliding with the Ariane booster piece is 97-023D. Long March upper stages are notorious for explosively disintegrating. One of those could be outgassing, causing what we just saw. Between you and me, though, you're uncovering the trail of something else. Between us, let's call it—Blu," Jack improvised. Yvonne laughed.

Jack's nights of broken sleep had begun to tell. He tried to prod his brain toward further useful thought. "Did Blu intercept, but avoid, anything else so far?"

"Fair go! I hadn't thought to ask that question. I don't have rowing tonight so I'll get a start right now. You should go home and have a lie down. You look exhausted."

The thornier this problem got, the more Jack was glad to have Dr. Norhill on his team. "Yvonne, I hope I'm not sidetracking you from your own research for a comedy of errors. That happens in this business. Orbital debris threats can turn out to be phantoms of miscalculation."

"I imagine so. On the other hand, if it's not a miscalculated false alarm, then it's something that's going to shock everybody to the back teeth, isn't it?"

In his study at home, Jack forced himself to finish tonight's self-assigned quota of insurance paperwork. He had a half-load of wash in the laundry room, not because that many clothes needed washing, but because the dryer's thumping purr made the house seem less dismally quiet.

Jack wore a flannel bathrobe over his pajamas. Milly had trained him to a certain standard of domestic decency everywhere except the bedroom. In the bedroom, they'd learned over the years how to be gloriously indecent with each other. He missed Milly terribly. When they first met, almost forty years ago, he'd been smitten by her dancing brown eyes. He'd thought Camille a wonderful, exotic name. He still thought so.

Jack jumped when the phone trilled.

"You shouldn't have answered on the first ring. It means you're up brooding," said Yvonne. "Anyway, your phone here in the office has been ringing itself silly. I finally picked up, and there was an excited Japanese person on the line. I put 'im on your phone mail. You might want to hear what he has to say."

After listening to Kazuhiro's recorded message, Jack moved to his computer to check his e-mail. He quickly confirmed that Kazuhiro was far from the only orbital debris specialist firing off agitated calls and e-mails this evening.

Staring aghast at the string of "highest priority" e-mails, Jack imagined Milly saying, *You're up to your anatomy in alligators, my dear.* He could almost hear the wry, kind tone of her voice. He could all but feel her laying warm hands on his shoulders. *Well, go get 'em!*

With his adrenaline level ratcheting up, Jack composed and sent an e-mail message. It was 10:15 PM Central time—6:15 PM in Hawaii. The recipient might still be in the office or have his laptop on this evening, learning that Jack had an outlandish favor to ask from the Air Force Observatory on Haleakala.

When Jack arrived at the Exploration Science Office the next morning, he found the coffeepot wafting out the aroma of fresh coffee with a distinctive not-coffee overtone. A note taped to the machine stated in outraged pink Hi-Liter, "NEXT TIME BREW NORMAL COFFEE! I HATE THE TASTE OF HAZELNUT!!

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Y.N."

Jack poured a full mug. He needed the caffeine, with or without the hazelnut additive.

On previous occasions, Jack had observed bad temper on Yvonne's part preceding a breakthrough in her work. She was running true to form today. "Blu did pass right by another one," Yvonne announced. "Left a working satellite alone. It was a French science satellite in a polar orbit looking at auroras."

Holding his coffee, Jack leaned over her shoulder.

"And look, with the course it's on now, it's got something coming up, one of those new low altitude telecommunications satellites. Think it'll go for it?—How can you stand that reeking stuff?"

Jack placed the aromatic mug on his desk. "What's the next most popular dog's name in Australia after Blu?" he asked with an edgy alloy of eagerness and dread. "And the one after that?"

"Oh, Skip, then I guess Jedda," said Yvonne. "Why?"

"It's not just Kazuhiro in Tokyo with their weather satellite. The guys under the Mountain spotted more pieces of debris missing. Then on e-mail I heard from my counterpart in the European Space Agency, and G.K. again. There are more satellites AWOL. I think there's another round going. Maybe even a third. All doing the same thing as Blu."

"Jeez!"

"Fill me in on the satellite next in line for Blu."

Jack jotted down what she told him. Suddenly his concentration vacillated back to his grief, as he realized that Yvonne might well be the age of a daughter he and Milly never had. Jack might have tried harder to have children with Milly if he'd known how lonely it would be to be left by himself. Yet, incredibly, life was going on. Right now it was going like an avalanche. Yvonne had barely finished giving Jack the rundown when a call came from Colonel Archer, USAF.

"Good morning, Jack." Archer sounded matter-of-fact. Jack had never heard Archer use any other tone of voice. He was an impressive man who had little need to resort to verbal special effects. "If your request came from an academic researcher, I'd send it straight into the round file cabinet on the floor. In your case, I'd like to hear your reasoning."

Jack took a deep breath and explained the situation, emphasizing the involvement of Sol Sugarman. Jack knew Sol had been behind more than one spy satellite built for the Air Force.

Colonel Archer had oversight of the Air Force Observatory in Hawaii. Situated at a high altitude, on the barren crown of the volcano Haleakala, the optical telescopes could image spacecraft in Earth orbit to a stunning degree, subtracting atmospheric effects to get images as detailed as they were highly classified. Best of all, by imaging in the optical part of the electromagnetic spectrum, there wouldn't be a telltale radar beam to alert Blu or its handlers.

"I see. You're proposing that the observatory witness the attack on the next satellite," Archer said. "Hear about the Russian spysat?"

"My counterpart in the Russian Space Agency says they lost one last night."

"Not just lost. It blew up. Their spysats have proximity fuses, and that one thought something was tampering with it. You may be down to two intruders. Which is two too many," said Archer. "Call the observatory and make the arrangements."

While Jack waited to be connected to the technical director of the Air Force Observatory, Yvonne gestured for him to look at her workstation, where she had been incorporating Jack's new data points into her trajectory calculations. "Look, you're right. There were three of them, Blu, Skip and Jedda, before Skip blew itself up by meddling with the Russian spy satellite. Anyway, three, and the first thing they each attack is at geo-

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synchronous altitude, high up." Yvonne's brow furrowed. "D'ya think the satellite snatchers have a mother ship parked at a LaGrange point?"

"Hell, I wouldn't know," said Jack. This business had now cantilevered itself out of his field of expertise to the realm of sheer guesswork.

Yvonne sat back, folding her arms, and scowled at the computer. "Or is something completely different going on?"

Several hours later, Jack, Colonel Archer and Sol Sugarman were connected across the Internet, with the same image on each of their workstations, streaming to them from Hawaii in real time. Yvonne looked over Jack's shoulder.

The image from the observatory showed a dark oblong object. It had three slender, flexing booms at least a hundred feet long. A huge and yawning maw opened up. And then a boom curled, tapping the luckless satellite, and the satellite tumbled into the gaping maw and disappeared.

Yvonne jumped. Stunned, Jack stared speechless.

"Those long parts look like feelers to me," Yvonne squeaked.

"Same here," said Archer. Sol's mouth just hung open.

Stars shone faintly through Blu's body. Opaque only in the center, Blu faintly glowed around the edges. Its whole shape gently pulsed at long intervals. "The thing looks alive!" said Yvonne.

She was right. It even had what looked like a wide flat eye near the base of its feelers.

Sol sputtered, "It *ate* my *canary*!"

"They can't be intelligent," said Yvonne. "Skip got blown to bits, and that hasn't fazed Blu or Jedda at all, hasn't stopped the behavior."

"What do they do besides eat?" asked Archer.

Jack shrugged. His mind felt slow, stuck in molasses-like disbelief.

"You got the name dead right," Yvonne murmured to Jack. "Blu 97-023D. 'You are what you eat,' and all that, and it ate the Long March upper stage quite early on."

"What's next on the menu?" asked Sol.

"How soon will something of national security value be attacked?" said Archer.

Yvonne turned to check her workstation. The drive lights intermittently flashed as it churned the huge debris database to factor in the new data points she'd given it this morning. Yvonne tapped a few keys. "Yikes!"

"Yikes what?" Jack demanded.

"I'm not sure, hate to say and get a false alarm up!"

Jack grew alarmed. It wasn't like Yvonne to lose her confidence.

"Look!"

Jack leaned closer. "Blu is heading toward—the International Space Station."

There was a moment's shocked silence followed by a minute when everyone talked at once. "They've got a lifeboat!" Sol finally yelled. "Tell the crew to come home in the lifeboat!"

Yvonne blurted, "If it were me, I wouldn't leave an entrée aboard what might be an hors d'oerve!"

"It sometimes passes on objects for some reason," said Jack. "Why? It avoided two things that we know about. Haystack even saw one of them. Why?"

"Because Haystack caught it in the act!" Nose wrinkling, Yvonne abruptly reached toward Jack's abandoned coffee mug, which was still almost full and stalely reeked of hazelnut, and shoved it farther away from her.

Jack tried to think past a howling caffeine-and-sleep-deprivation headache, wracking his brain for a pattern. "No. There's more to it than that. What Haystack was using, the beam it sent out, came from Haystack Auxiliary. HAX. It was radar in the radio K-band. Ka to be exact. The other object Blu approached but didn't eat was a French science satellite transmitting in the K-

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band."

Then everything came clear to Jack. It was like the times he'd seen classified images from the Air Force Observatory, blurred and indefinite until the atmosphere-correcting computer program kicked in, then startlingly distinct and unmistakable. "K-band radio repels it," Jack told the others.

"Why?" asked Archer.

Jack's gaze fell on the coffee mug exiled to the far corner of his desk by Yvonne. "Maybe radio tastes bad to it."

"Could transmitting K-band save my birds?" Sol sounded galvanized.

"It's what I'm going to suggest ISS do," Jack answered, seizing the telephone. "We'll soon see what happens."

The International Space Station could make itself a very noisy spacecraft.

The astronaut/cosmonaut crew had two communications channels and a data downlink simultaneously transmitting in K-band radio and S-band too for good measure. One comm channel blared music—Hector Berlioz's *Symphonie Fantastique*, from a cosmonaut's personal CD. On the volcano in Hawaii, the Air Force watched intently.

Blu coiled up its feelers and veered away. It zeroed in on a derelict Pegasus upper stage instead.

Shortly thereafter Jedda was averted from a Department of Defense satellite which, for once in its life, had been instructed to advertise its existence, transmitting nonstop in K-band radio. Meanwhile, Lassie appeared. Lassie promptly feasted on a defunct weather satellite, watched with riveted fascination by the Liquid Mirror Telescope in Arizona.

Jack and Yvonne hurried to Johnson Space Center's Building One for the most unexpected and high profile meeting of Jack's career. "What the hell do I say? Invaders from outer space?" Jack could imagine the story in the evening news, in the *National Enquirer*, and himself in a glaring spotlight of publicity.

"That would stretch the point, wouldn't it? The things are dumb as fence posts. Skip got blown up by the Russian satellite, and the other two stayed right on course."

"They target technological space artifacts. Nobody in the astronomy community has discovered any missing moons or asteroids. If that continues to hold true, then Blu and its pals are from—from—" As the implications sunk in, the hot, sunny day turned glassy and unreal for Jack. "My God. They have to be from where a civilization has begun space faring, or attempted to. Why would something exist to devour spacecraft in orbit? Is this a cosmic scheme to keep civilizations at home?" It was a sickening possibility.

The blue sky hid the infinity of stars above their heads. Yvonne abruptly held Jack back from crossing Saturn Lane as a car sped by, the driver talking on a cell phone and oblivious to the fact that the space program's universe had changed overnight. Yvonne said, "If each live satellite and spacecraft transmits the right kind of radio as soon as Blu or another one approaches, they'll only eat orbital junk. And devour that with gusto. You know what cleaner shrimp are?"

"Shrimp? What?"

"Cleaner shrimp. Little beggars that live around some species of big fish like groupers. The cleaner shrimp help themselves to particles of dead matter on the fishes' skin and even in their mouths. The fish don't eat the shrimp because the shrimp are doing them a favor. It's good hygiene and all."

They entered the JSC campus Mall. "Planetary cleaner shrimp?" said Jack.

"Why not?"

"There would have to be many other planets with satellites and orbital debris—enough orbital debris in the galaxy to sustain a species that lives on it."

"We don't know what their metabolism is," Yvonne amended. "The debris may be supplemental nutrients. Or bro-

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ken down for propellant mass."

Jack gazed across the JSC campus with its expanses of bright green grass and widely spaced white concrete buildings. Between one footfall and the next, a vivid syzygy of ideas lined up in his mind. "It doesn't make any sense for such a species to evolve naturally. But they could have been *designed* to solve the orbital debris problem somewhere. An artificial species that proliferates on its own, crosses the distances between the stars on its own, doesn't have to be expensively maintained and carried to new places. But does show up where orbital cleaning needs doing!"

Bright as she was, Yvonne raced to the corollary that had just begun to glimmer in Jack's imagination. "Then somebody has a large flock of worlds that need to be kept clean. An interstellar federation or union or some such? Woo!" She drew a hand across her brow as they turned on the sidewalk to Building one. "If that's the case, then we are not alone—at all!"

Jack imagined other worlds, hubs of space exploration and commerce, attended by Blus and Skips and Jeddas which fastidiously cleaned up the orbital jetsam that was a byproduct of space travel. Chills of dread and wonder ran down his spine. "Not being alone could be good, or it could be very bad!"

"I think humankind will cope somehow. Who knows? It could be all for the better. Fortunately, you don't have to predict that—just tell management what we've seen." Yvonne gave him a quick hug as he opened the door. In a momentary gale of escaping air-conditioned air, they tumbled into Building One. "Planetary cleaner shrimp!" Yvonne declared, and almost collided with three dour, business-suited Building One people on their way out the same door. "But Jack, they might put you out of work!"

"Then I can retire," Jack replied. "And take up scuba diving." ■

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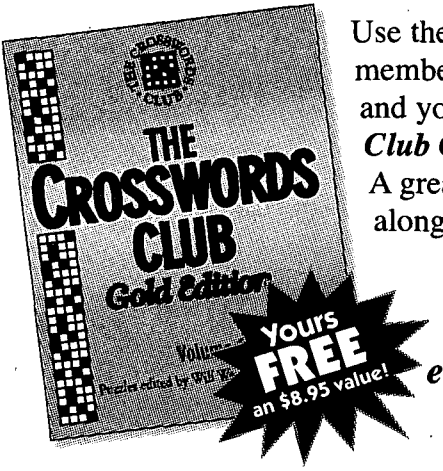

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IN REGARDS TO THE BOVA LETTER

If you haven't already done so, please flip to the Brass Tacks section and read the letter from former *Analog* editor Ben Bova concerning my Alternate View "Isaac Was Wrong, Maybe" from the November, 2003 issue. When you've finished reading, you may want to keep you finger tucked in back there because I will be referring to Bova's letter often. This column serves as both an answer to Bova and as a vehicle to take up some matters raised in his letter that I wanted to take up sooner or later anyway. (By prior arrangement, I worked it out with Ben Bova and Stan Schmidt to have Bova's letter printed in the same issue of *Analog* in which this column would appear.)

In the last paragraph of his letter, Bova says two things, both of which I agree with, have long agreed with, and most certainly agreed with when I wrote my column. He says: "To use the Drake equation to prove anything is numerology. To use UFO sightings to prove that we've been visited by extraterrestrials is nonsense." However, for some reason, Bova seems to think that in my column I disagreed with his second statement. He even goes so far as to say he was shocked that I could make such a fundamental error in logic. But I did no such thing. And Bova was not the only person to write and point out this supposed error. I also received a letter from a reader named Avital Pilpel. (His letter and my reply may or may not have made it into Brass Tacks by this time.)

As a regular *Analog* columnist, it is simply part of the job to get letters from readers who seriously misunderstood what you wrote, and you can often tell from their letters that they didn't carefully *read* what you wrote. Stan certainly gets his share of them, and so did Ben Bova when he was editor of *Analog*. However, it is unusual for me to get a letter from a former *Analog* editor wherein he, clearly, didn't read as closely as he should have. I am not going to take Bova to task for this so much as show (to him but also to you) how easy it is to make this mistake, particularly when writing about emotionally charged matters, like UFOs.

Let us examine the actual offending sentence and that which preceded it. I wrote: "What I mean is that the UFO culture uses its own form of the Drake equation, even if not explicitly. That is, they multiply the number of reported sightings by the fraction of sightings made by credible observers, times the number of those sightings that resist conventional explanation, and so on until they arrive at a total number of sightings that seem explicable only by extraterrestrial visitation." All I was doing here was characterizing the way in which UFO types use "Drake-equation-esque" reasoning to justify their research into whether or not some UFOs are the product of extraterrestrial intelligence. Earlier in the column, when describing how SETI types use the Drake equation, I said they "use the equation, with suitably optimistic educated guesses filling in the blanks, to show that such a search is not simply a fool's errand." So, too, with the UFO types.

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One will search my column in vain to find any point where I suggest this is sound reasoning, let alone any point where I suggest UFO sightings *prove* anything about extraterrestrials. In Bova's own fact piece "Isaac Was Right," (*Analog*, April 2003) which I used as the stepping off point for my column, he says: "[The Drake equation] can hardly be considered a reliable guide to anything except our own prejudices." I agree, and this is true whether or not SETI types or UFO types are using Drake-equation-esque reasoning.

I grant you, when you see UFO enthusiasts on TV documentaries, they often *sound* as if they think the plethora of sightings over the years cinches their case that certainly some of those sighting must be of alien spaceships. Why, there are so many! But I'm sure that with some polite conversation over coffee and via close questioning, I could get even the most enthusiastic of these people to admit that the number of sightings doesn't actually *prove* their case—they were just being careless in their use of language (as if they were cosmologists discussing dark matter in a PBS science show).

We can return to Bova's letter to find out how he got confused about what I meant. He added his own emphasis to one of my sentences so that it reads "that seem explicable *only by extraterrestrial visitation*." He misled himself by putting the emphasis this way. Indeed, if emphasis is to be placed at all, it should go like this: ". . . that *seem* explicable only by extraterrestrial visitation." "Seem" does not imply certainty and most of the serious UFO enthusiasts I know do not think unexplained sightings are proof of extraterrestrial visitation—they are, however, an almost necessary prerequisite before one begins searching for proof. I could also have written the sentence so that it reads "that seem to *them* explicable only by extraterrestrial visitation." By "them" I would mean those in the UFO culture. (But that would be excessively repetitious given that the preceding sentence specifically refers to the UFO culture.)

More insight can be gained by noting that Bova is concerned that I equated the reasoning used by SETI researchers with that used by "UFOlogists." Notice that he used the term UFOlogists. This is a rather quaint term, and it usually summons up negative connotations. I prefer to use "researchers" for both, or when I'm just being playful, I might say, as I did in my column, "SETI folk" and "UFO folk." He also used this interesting choice of words. He said: "In *trying to* equate UFOlogist's claims . . ." (emphasis mine). Well, Ben invoked Spock. Let me invoke Yoda. "There is no try." SETI folk and UFO folk both use an *identical* form of reasoning to justify the *reasonableness* of their research pursuits. The entire point of my column was that it is hypocritical for us ("us" being SF writers, science writers, readers of this magazine, Stan, Ben Bova, me, etc.) to take SETI researchers (at least somewhat) seriously and yet ignore UFO researchers as mere cranks. The former group has, to date, despite megabucks thrown in its direction from the public troughs, produced nothing in the way of proof and very little in the way of *evidence*, to suggest aliens are trying to communicate with us. At least the latter group, though it hasn't provided proof either, has provided gobs more *evidence* in favor of its position.

Bova included an extensive quote from Michael Shermer, publisher of *Skeptic* magazine, in which he thinks Shermer makes a clear distinction between SETI scientists and UFOlogists (there's that word again). Bova's position would have been helped if Shermer was actually right, but he isn't. (This quote reminded me of why I don't read Shermer's books or his magazine.)

Anyway, to the quote. Shermer says that "SETI scientists begin with the null hypothesis that ETIs do not exist and that they must provide concrete evidence before making the extraordinary claim that we are not alone in the uni-

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verse." But this is bullshit. They *begin* with the hypothesis (though that may be too strong a word—"conjecture" may be more fitting) that it is reasonable to look for ETIs based on Drake-equation-esque reasoning or simply on the Copernican notion that the Earth isn't unique. If they started with Shermer's null hypothesis, there'd be no reason to start looking at all. No scientist starts with the assumption that the thing he is looking for doesn't exist. However, when evidence comes in—in the SETI case, perhaps in the form of an interesting signal—then a good scientist applies the null hypothesis to that particular piece of evidence and tries to find *proof* that it is indeed from ETIs before declaring that it is.

Shermer goes on to make a false claim about "UFOlogists" in general, though it *is* true in an unfortunate number of specific cases. He says, "UFOlogists begin with the positive hypothesis that ETIs exist . . ." Well, maybe some UFOlogists do. But serious UFO researchers actually begin with the hypothesis that there is something worth investigating, and then, when evidence shows up, they also apply the null hypothesis and go on to try to find proof.

The danger in calling one group "researchers" and the other "UFOlogists" is that it leads to comparing apples to oranges. Anyone with a camera and a car and a "hankering to find flying saucers" can travel the country calling himself a UFO expert without having an iota of understanding about how science works. However, to do something as specific as SETI work, you really have to have a radio telescope handy and a degree in your pocket. My guess is that there actually are "SETIologists" who don't believe in flying saucers but do think they're picking up alien signals on their short-wave radios, but we never see them interviewed on Discovery Channel UFO shows. (And if we did, the Shermers of the world would call them UFOlogists.)

Since Bova confessed to being shocked, I think it only fair that I admit my own shock that fellows as obviously intelligent as both Ben Bova and Michael Shermer would be confused by something as simple as the distinction between "proof" and "evidence." The second half of Shermer's quote is even more shocking. He accuses UFOlogists of employing questionable research techniques, then in his "such as" laundry list includes "low-quality evidence." Can Shermer really not distinguish "techniques" from "evidence" either?

Okay, I'm not really shocked. I'm sure that with some polite conversation over coffee and via close questioning I could get both Bova and Shermer to demonstrate that they really *do* know how to differentiate between proof and evidence. My gripe is that they are not writing as if they know the difference (Bova in his letter and Shermer rather more frequently). The very heart of scientific discourse is the battle between claims and robust and sound skepticism of those claims. Imprecise and sloppy skepticism is a pox on the process whether done deliberately or carelessly.

Just to finish up, near the end of his letter Bova says: "But the conclusion that these unidentified objects are extraterrestrial visitors is unsupported by any solid evidence, even after more than half a century." I certainly don't think any evidence I've seen constitutes proof of extraterrestrial visitation, but some of the evidence *is* reasonably solid. It is certainly solid enough to warrant further serious investigation by those who are interested in such things. But I think I should say now, explicitly, to save me trouble from other readers who may have misunderstood *this* column, that I am *not* an advocate for the validity of any specific claims made by the UFO community. That the UFO community has gathered up more evidence in support of the validity of its mission than has the SETI community I think is simply a fact. But most of it is crappy evidence. It's better than nothing, which is all SETI has to show, but not much better than nothing. ■

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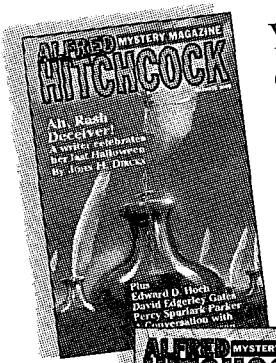

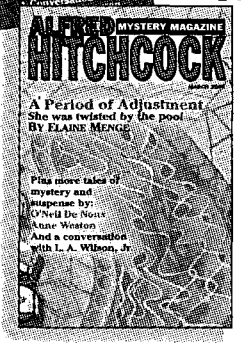
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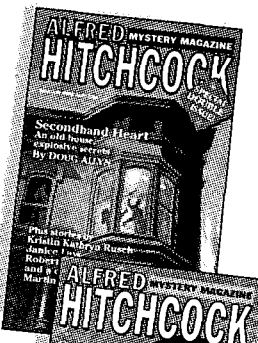

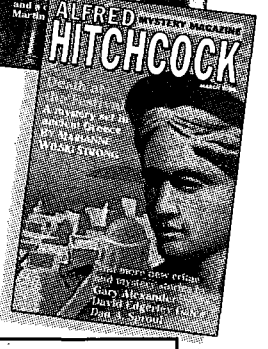

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Do Unto Others

Kelvin Throop

"I got the idea from a postage stamp," God said, which did little to reassure the assembled and assorted clerics. Like most attendees at professional conferences, He wore a neat plastic badge that said, "Hi! My name is God," though exactly what it said His name was depended on who was reading it. Christian ministers and priests read it that way, as did some rabbis; others insisted it said "Yahweh," while Muslim imams swore it said "Allah."

But that was minor compared to the issue at hand. "A postage stamp?" an Episcopalian echoed incredulously. "What could a postage stamp have to do with this? You said you gathered us here because—"

"Because," God finished for him, "so many of you have been praying so fervently to Me of late." He chuckled disconcertingly. "Nothing like feeling threatened to whip up devoutness, is there? Anyway, so many of you were asking the same thing I figured I might as well get you all together and answer everybody at once. Besides, if you really want to do anything about your problem, you're all going to have to pitch in."

"Our problem," a gentleman of unobvious affiliation said bluntly, "is that our flocks are dying off."

"Everyone has *always* died off," God pointed out, "eventually."

"But there were always others to take their places," someone else said. "Our problem, not to put too fine a point on it, is a worldwide epidemic of sterility. And our doctors can't find a cause—or a cure. What are we to do if people can't have children when they want to?"

"Some people *are* still having children, are they not?" God asked.

"Well, yes," one of the indeterminately many attendees admitted. "But a great many can't, and there's no obvious reason for it. If this goes on, what's to become of us? Do you *want* us to perish from the face of the Earth?"

"No," said God, "though there've been times when I found it tempting. But I don't think that's a problem. I've taken the liberty of having the Celestial Accountants crunch some numbers for Me, and they tell Me that the average

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birth rate worldwide now is slightly under two per couple. That sounds pretty sustainable to Me."

"How so?" said still another voice in the crowd. "That's less than a replacement rate—"

"Ah," said God, with a twinkle in His eye, "but you forget that, thanks to various improvements you've made—for which I'm actually rather proud of you, I might add—your life expectancy is steadily increasing. Combine that with a 'replacement rate' and you actually get a continuing increase of population."

There was a silence of some length as the assemblage tried to absorb that. Then somebody with a drawl asked, "But isn't that what you wanted? You plainly said, 'Be fruitful and multiply.'"

"That was then," said God. "This is now. Times have changed." He drew Himself up to His full height (which was awesome). "Yes, I did say that, back when there were so few of you that you had a hard time just making a go of it. But you got past that a long time ago. Now I look at your world and I see so many of you suffering in so many ways, most of which are a direct result of the fact that there *are* so many of you. Hunger . . . pollution . . . disease . . . depletion of this, that, and the other thing . . . asinine squabbling over which little group of you are My favorite children, as if any of you were. . . . I kept wondering when you were going to develop some self-control."

"But," said a confused voice, "we've always been taught that 'God will provide—'"

"How about 'God helps those who help themselves'?" God interrupted, a bit harshly (and a divine "bit" is quite considerable).

An even longer silence. Finally somebody asked, almost inaudibly, "So are you saying you did this to us on purpose?" When God said nothing, the same voice asked even more meekly, "What did the postage stamp have to do with it?"

"Oh, that," said God, His voice brightening. "They were awfully cute, actually. One of your countries produced whole sheets of them, alternating cute kitties and cute little puppies, with the most appealing looks on their faces—and if you looked very closely, you could see, in faint type along the margins, 'Neuter. Spay.' And up at the top of each sheet it said, 'Too many animals. Too few homes. Save lives. Neuter or spay.'

"Well, I got to thinking about that and decided one of your writers—a fellow who called himself Mark Twain—was right, even though he thought he was being ironic when he called your species 'The Creator's Pet.' You really are My pets, and I'm rather fond of you, exasperating though you can be at times. I realized that you, too, had an over-breeding problem and hadn't learned to take care of it yourselves. So I did it for you.

"After all, you said you were doing it for *your* pets' own good, and some of you do seem to have a fair grasp of 'Do unto others as you would have them do unto you.' So I thought you'd understand." ■

I respect faith, but doubt is what gets you an education.

— Wilson Mizner

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The Bistro of Alternate Realities

Kevin J. Anderson

A shortcut and a trap can look very similar. . . .

The problem with closely parallel universes is that they all look the same. Sometimes, it takes an expert to notice the subtle differences, and only a professional timeline hunter can find variations for profitable exploitation by Alternitech Corp.

Heather Rheims arrived through the portal and took a deep, sweet breath to adjust herself to seemingly familiar surroundings. Among the myriad possible realities, the technology of Alternitech could fling her into nearby universes, worlds where decisions and alternatives had just slightly frayed the course of history. Thus, the city looked the same, the people were the same, most of the daily newspapers ran similar headlines . . . but some things were different. She just had to make her assessment.

Heather was the first one to reach the coffee shop. After wavering between possibilities, she chose a large table with eight chairs, which had always been sufficient for the doppelgangers who would show up. She picked a seat, then moved her pack to a different one, where she could see the door.

Leaving her equipment and her detailed archaeological notes on the table, she went to the coffee bar attended by a gaunt-looking young man with a wispy goatee—it was always a young man with a wispy goatee, no matter what universe she was in—and stared at the variety of hot and cold drinks, caffeinated and decaffeinated, sweet and bitter. Too many choices.

Though she came to the bistro on almost every journey through Alternitech's portals, she still had trouble making up her mind. Some people ordered the same hot beverage day after day, but Heather had never settled into a comfortable routine.

Unfortunately, that led to a crisis of decision every time she was faced with ordering coffee. After vacillating, she finally asked for a cappuccino with an extra shot of espresso, since she'd been

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feeling run down. She took her wide cup back to the table and opened her thinscreen laptop so she could call up the esoteric archaeological details she was supposed to know by heart.

As a timeline hunter, Heather had been sent off into parallel universes in search of everything from medical breakthroughs to new music by the Beatles to conspiracy evidence in the JFK assassination. This time, she was a proxy archaeologist. She sipped her cappuccino and wiped foam off her lips before perusing the lengthy summaries of recent findings of ancient Greece and the Peloponnesian Wars.

Archaeology was not a rigorous science of trial and error and analysis: Finding artifacts that had been buried for untold centuries in uninhabited areas was primarily a matter of serendipity and luck. Some Turkish shepherd might go looking for part of his flock and discover a pile of ancient armor, the ruins of a fallen city, or documents sealed inside airtight containers. A single accidental find, like the Dead Sea Scrolls, might change the field forever—at least that was what the passionate young researcher Bruce Wanderlos had told Heather when he'd first hired her.

"Just because someone stumbled upon the ruins of ancient Troy in our timeline, doesn't mean the same accident happened in others." His eyes were bright, his pale brown hair curly and unkempt, but with a natural looseness that made the mess appear intentional and attractive. "And thus, the converse must also be true."

After receiving a large university grant, Bruce had taken the controversial step of contracting Alternitech rather than going himself out into the field himself. Heather was assigned to go through the portal and look over current archaeology journals. "It's desk research, I know, and not terribly exciting—but if you copy the records of other digs, other discoveries that haven't been made yet in our universe, then I'll know exactly where to look here."

"Isn't that cheating?" Heather had asked.

He seemed so taken aback by her suggestion that she found him endearing. "This is acquiring information for science and history and the enrichment of mankind. It's not a game."

Now, in the coffee shop, she scrolled through items Bruce might be particularly interested in. The sophisticated software on her thinscreen allowed her to upload online records of any number of timeline-specific archaeological journals and scan for differences. The hardest part was deciding which place to go first. On one of her initial searches for Bruce, she had stopped at Mrs. Coffee Belgian Café and Bistro, intending just to have a cappuccino or a mocha while she planned her strategy—and then she'd discovered something incredibly alarming.

The door opened, and the tinkling silver bell announced the arrival of a new customer. She looked up to see, as expected, another Heather. She wondered which one this was and how many would be arriving for today's kaffeeklatsch. The other Heather, nearly identical except for her blouse, came over to drop her backpack in the chair beside Heather.

The barista blinked in surprise, as he always did, but by now most of the employees of Mrs. Coffee were used to the unusual event, convinced by the absurd explanation that all the Heathers were part of a Look-alike Club.

The new Heather went to the counter, swept her long cinnamon-brown hair out of her eyes and tucked it behind her shoulders. She decisively ordered a cappuccino, but without a shot of espresso. Heather wondered if maybe she should have done the same; did she really need the extra caffeine? She looked up to see another identical person step through the door. They would all be arriving soon.

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Since, in her own world, Alternitech sent timeline hunters to parallel universes seeking to exploit differences, it only made sense that in many of those similar realities, other Alternitechs would send other timeline hunters, many of whom would be Heather's counterparts. The first time they'd stumbled upon each other was quite a shock, then a delight. Eventually Heather and her counterparts discovered that they could pool their resources.

Two more Heathers entered the coffee shop and bistro, standing in line to order their drinks, many of which were the same, though others had subtle variations, as was to be expected. Heather sat back and watched them all.

In the mix of universes, the people weren't always the same, but by now some of her doppelgangers were familiar to her. Most obvious was the Heather with a thin childhood scar on her cheek, a mark from when an abrupt gust of wind had blown a screen door into her face. Heather remembered that incident when she was a girl, but she had ducked aside and not been cut, as had most of her counterparts.

The first alternate Heather brought her cappuccino back to the table and sat down. Her opening question immediately identified her as Gloomy Heather. They all had quick nicknames, like the Seven Dwarves. "So are you dating anyone yet? I'm not. How's life in your timeline?"

Heather took another sip from her large cup to hide her embarrassment. "Not dating anyone at the moment, but it hasn't been that long."

"That archaeology guy's awfully cute," said another Heather, the one who had earned the nickname of Intense. "If my Sasha wasn't so damned good in bed, I'd ask Bruce out in a minute."

Intense Heather had hooked up with a fiery-eyed young rock musician, and the two had gone supernova with their initial romance. Intense rarely talked about anything else, and she had shown Sasha's picture to them all, in case they had a chance to bump into him in their own parallel universes. "Don't miss your chance. I almost did. Luckiest drink I ever spilled."

Intense had accidentally stumbled in a crowded bar on her way to a table of her own, spilling a glass of red wine on Sasha as he'd been heading for the door. He had responded with a flash of anger, and Intense Heather offered such abject apologies that the young musician burst into laughter and invited her to dinner. That had been the start.

So far, though, in every other parallel universe the Heathers had missed their chance, stumbling but catching the wine before it spilled, or losing Sasha before he walked out the door and never encountering him again. Heather had botched the opportunity entirely: when she mentally backtracked to the night in question, she realized that she had stayed home, unable to decide where to go.

Scar Heather sat down, picking up the conversation. "I'm flirting with Bruce, but I think he's just shy."

"Maybe I'll ask him out," said Gloomy, "but he'll probably say no."

"So what if he says no?" Intense responded. "You're not any worse off than if you don't ask at all. It's a no-brainer."

Heather found herself nodding. She had sensed the shy archaeologist's attraction for her, which he masked as appreciation for the successful work she'd done so far. Maybe she would push a little harder so that at least she'd have something to talk about with her counterparts the next time Intense bragged about her wild escapades with Sasha.

The smiling one who sat down was obviously Happily-Ever-After Heather, the one incarnation of all her parallel lives where circumstances had turned out perfect in every way. Two years before, most of the Heathers had been in a steady relationship with a computer programmer and part-time graphic designer named Perry. They'd fit together fairly

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well, but then Heather's sister Jamie had been killed, and the tragedy had torn her apart. Withdrawing, she'd taken out her resentment on Perry, and the two of them had parted.

But circumstances were slightly different in the universe of Happily-Ever-After Heather. Jamie had accidentally avoided becoming a random victim, and Happily-Ever-After had never faced the insurmountable stress in her relationship with Perry. Though they'd reached a crisis of personal goals and feelings, they had decided to work out their differences, investing in their bond instead of drawing apart. Perry and Happily-Ever-After had gotten married a year later, and now they had a fine home, both had good careers, and everything was perfect. The other Heathers halfway resented their counterpart, but most of all they envied her. . . .

When finally all of the alternate Heathers had their coffees and sat down at the table, Intense Heather unzipped her pack and withdrew her thinscreen. "Time to get down to business. The portals will be back before you know it." All eight of them looked at their watches with comical simultaneity.

Each Heather took out her carefully culled and organized database of archaeological information from her own universe. Instead of spending hours sifting through library records or digging out obscure references in journals, all the Heathers sat down for coffee and conversation. That way they could simply exchange all the files they had collated from their homes. In an hour of swapping and comparing records, the eight Heathers could achieve as many discoveries as if they had gone on eight separate timeline hunts.

This cooperative efficiency had made her quite a success in all her incarnations—at least all of the ones who showed up at the coffee shop. Heather's counterparts and their identical goals yielded a synergy that allowed each of them to deliver clue after clue to the endearingly appreciative Bruce Wanderlos. Most of the differences turned out to be of no interest to anyone, but occasionally they hit the jackpot.

And while their thinscreens were humming and exchanging, compiling and rejecting, Heather had a chance to listen to advice from her alternate selves. It was like having a sounding board better than a best friend, drawing upon common experience and shared hearts. The Heathers who had made bad decisions did their best to help those who had not yet encountered that particular risky situation.

At first, Heather had been somewhat hurt to discover that they'd labeled her Indecisive Heather, but the reasons were obvious even to herself and she couldn't fault them for it. She had come to depend on these conversations and personal strategy sessions. She rarely made up her own mind anymore, but hesitated too often, losing opportunities.

"I've got an idea," said Intense, slurping her double espresso. She targeted Gloomy. "You always say you missed your chance, that by sheer bad luck you're never in the right place at the right time. Believe me, half of it's your own problem because you don't take any chances—but here I'm offering you one. Switch with me. Go home to my universe and spend a day or two with Sasha."

Gloomy's eyes widened. "I couldn't do that. He's your—"

"And you think he'd be cheating on me if he slept with you? You are me. God, if I was the one who hadn't been laid in two years, I'd sure hope one of you might take pity on me."

"But . . . but how will I ever fool him? We don't have the same history. We look the same, but your personality's entirely—"

"You wouldn't have to fool him, Heather dear. He knows what I do for a living. In fact, he'd get a kick out of it, and you'd give me a rest. Frankly, I'm a

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bit sore, and I could do with a day or two of just sitting at home and reading a book. You've probably got the same unread novels on your shelf that I do."

The other Heathers immediately went into a detailed discussion about the morality and wisdom of this plan. Heather suspected many of them were secretly hoping for their own chance with Sasha.

Happily-Ever-After looked deeply uncomfortable. "Your lives are what you made them, every mistake, every decision. Why can't you be satisfied with the way things are? It's nice to compare notes with each other, but this is drastic."

"Sure," said Scar. "Listen to advice from the one who has a perfect life." Happily-Ever-After blushed as if ashamed of her own good fortune.

When all their databases had been exchanged, they finished their coffees and picked up the dishes. Heather was glad she didn't have to make the choice that Gloomy Heather faced. It would have taken her a month to make up her mind.

"All right," said Gloomy, "if I don't do this, you'll never let me complain again." She forced a wan smile. "I'll go back through your portal, you go back through mine." Gloomy and Intense shook hands like businessmen, then realized how absurd they looked and gave each other a simultaneous hug.

"Be careful, Sasha just might burn you out," Intense said.

"That'll be . . . quite a new experience for me," Gloomy answered.

They all split up. Heather shouldered her backpack and went to her own rendezvous point, where the discreet portal would shimmer through the air.

They would all meet again at another bistro in another parallel universe.

When she delivered her results to the technicians at Alternitech, Bruce Wanderlos was there waiting with a shy smile. While he skimmed the results. she went to the locker room to shower and change, getting back into decent clothes instead of the plain "don't notice me" outfit Alternitech asked its timeline hunters to wear.

Before she left for the day, though, the archaeologist met her outside the dressing room door. His eyes were shining, his face flushed, and he took a quick step toward her as if he wanted to give her a happy kiss. "You don't realize what you found there! There's a fleet of Greek warships sunk in a bay off the Anatolian Peninsula. They've been preserved in the deep, cold water. According to these papers, one of the archaeologists believes it was Agamemnon's fleet in the Trojan War!"

Heather recognized that such a discovery would make a name for Bruce. "Sounds like you've got your work cut out for you."

Bruce shook his head and drew a deep breath. "I don't know how I can ever thank you. I just wish—"

Impulsively, remembering her Intense and Happily-Ever-After counterparts, she said quickly before she could think about it too much, "Well, you could ask me out for a drink—or dinner, if you feel really grateful."

He seemed taken aback. "I didn't know that—I didn't think . . . are you sure it's all right if we mix business and socialization?"

Heather raised her eyebrows. "Bruce, if this is as big a discovery as you say, you won't need to hire my services any more."

"All right." He was delighted at his doubly unexpected good fortune.

She gave him her number and address, and they arranged a time. "Oh, and Bruce?" Heather called, giddy at her own good luck. "If this discovery is so significant, you better find someplace that doesn't just serve hamburgers."

"I . . . I'll make reservations."

"Just because a seafood chain has the word 'lobster' in its name doesn't mean it's a fancy restaurant," said Scar, but she

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looked more amused than disappointed.

Heather sat back and drank from her double mocha. "Well, I don't care. It was the nicest evening I've had in a long time."

"He took *me* to an Italian restaurant," said Silly Heather, who always had trouble opening up her real feelings and covered it all with a joke, even among her identical counterparts.

Happily-Ever-After just grinned. "I'm so pleased you finally made the decision to do it. Part of me wishes you'd try to patch things up with Perry, though, because we're so happy together."

"We know," groaned Intense.

"Perry's married again in my universe," said Heather. "I took too long—"

"He's only engaged in mine," said Scar.

Quiet Heather watched them all; she was one of the few who hadn't gotten up the nerve to nudge Bruce into a date, but she looked as if she might change her mind.

Intense seemed inordinately edgy and disturbed. All the doppelgangers were curious to hear the story of Gloomy's "perfectly licit" affair with the passionate Sasha . . . but Gloomy hadn't joined them today, or the previous two meetings.

"I'm sure it turned out all right," Heather said, sensing how deeply disturbed her normally gruff counterpart was.

"She probably just wants him for a few more days to get her fill," Scar suggested.

"Sasha can sometimes be a little . . . intense."

"You're a perfect match for him then," Silly said. Some of the other Heathers chuckled, but the Intense one did not.

"Bruce asked me out again," Heather announced, "on his own initiative this time."

"How long do you think I should wait until I sleep with him?" said another one.

"Are you kidding? He could barely manage a goodnight kiss."

"He's shy, not celibate," said Scar.

"Did you ask about his family?"

"Did you tell him about Jamie?"

"He seemed very sad to hear it when I did."

"How serious is he about all this?"

"How serious am *I* about this? It's too soon to ask those questions."

"He's never been married, has he?"

"No. I asked him pointblank."

"I wish he wouldn't hold his fork like that. Nobody ever taught him table manners."

"We had pizza, so I didn't get a chance to notice."

"Who cares about his table manners? It's his personality that counts, and Bruce is very nice."

Heather listened to the rapid-fire exchange of alternative dates that she could have had. It seemed as if she got to know Bruce Wanderlos better by hearing all the comparisons . . . but it was unfair. Did she really need all of these surrogate Heathers to live her life for her?

"You're all pathetic," said Intense. "Just listen to yourselves! I was always fairly strong and independent—and so are all of you. But now you sound like a bunch of airhead cheerleaders in a locker room."

"Excuse me," said Happily-Ever-After, "but you were insufferable yourself when you started seeing Sasha. I don't think I'm the only one who was tired of hearing about all your sex."

"Maybe you're just upset to be away from him," said Quiet Heather.

"Or maybe you're jealous because another one of us is with him," said Scar, "despite all of your assertions to the contrary."

Someone else came in to the bistro, and Intense looked up quickly, hoping that she would see her Gloomy counterpart return, but it was just a middle-aged man looking for a sandwich. Angry and frustrated, Intense grabbed her pack and took her thinscreen, though she hadn't

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finished exchanging files with all of her doppelgangers. She stormed out of the coffee shop while the other Heathers looked after her.

"Something's worse than she's admitting," said Heather. "Most of us would be worried in that situation, but not go ballistic."

Scar finished her coffee while Happily-Ever-After gathered their cups. Scar said, "We still haven't settled how fast should we push this with Bruce. How far do we go?"

"We'll each have to decide that for ourselves," said Heather.

All of the others looked at her in surprise as if she had just told a joke.

On their second date Heather and Bruce went out to a subtitled foreign film that Heather thought was supposed to impress her, though neither of them much enjoyed—or understood—the movie. Following the lead of what some of her counterparts had done, she decided to tell him about her sister Jamie, showed him pictures. As she expected, Bruce was very understanding and compassionate without being maudlin.

Still, she felt odd every moment, a strange sense of déjà vu—as if she were stuck in an old rerun of *It's a Wonderful Life*. Some people would have considered it an advantage to test out choices and decisions, then rewind and try again if they didn't work. Would Bruce himself think it was cheating, in a completely different sense from how he used someone else's archaeology work?

In an awkward yet sweet way, he asked her to come to his apartment for coffee—she was getting tired of coffee, but she listened to his words, which he had obviously rehearsed in front of a mirror. She ended up staying for three hours, but the whole time they just sat on the sofa and talked. He didn't even try to kiss her until she was about to leave. Heather supposed that the next time she met her counterparts in the coffee shop, her doppelgangers would be full of alternate endings for this evening, some of them lurid, some of them embarrassing. But she liked the way her own had turned out, with or without coaching from her other selves. . . .

Thanks to Heather's results, Bruce now had more archaeological work than he could handle for years. Alternitech timeline hunters were expensive, and his grant money had nearly run out, so he finished his request for Heather's services, though he intended to keep seeing her on a more personal level.

On her last outing for the project, Heather went tentatively back to Mrs. Coffee, not sure if she even wanted to keep discussing their budding relationship with the other Heathers. Part of the excitement of romance was the spontaneity, the unpredictability, and she had an unfair advantage if she already knew a dozen possible ways that any evening might turn out.

Intense Heather's boyfriend Sasha seemed too unpredictable, a loose cannon with mood swings and fiery passion, while her own former relationship with Perry had been too sedate and comfortable. She didn't know how it was going to turn out with Bruce . . . and she wasn't sure she wanted to know. This wasn't being indecisive, as was her too-common flaw—it was being accepting.

Though the archaeology project was over, the Heathers would continue to meet in the coffee shop, discussing ways to increase their discoveries in alternate timelines. But Heather wasn't sure she was interested in talking about her personal life. Maybe she wanted to make her own choices for a change.

Today she was one of the last to arrive. Inside, it looked as if Intense was having a nervous breakdown. She shouted, "You don't understand! I'm terrified for her. I got her into this! I egged her into making her decision—and what if Sasha's hurt her?"

"He wouldn't hurt her," said one of

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the other Heathers, trying to be soothing.

"Oh, and you're the expert on his unstable personality? He's got problems. He flies into rages. He's supposed to take medication, but all the time the asshole convinces himself he doesn't need it."

"That doesn't sound like the man you've been talking about all along," said Scar.

Intense wrung her hands. "He's not like that usually. He can be sweet and romantic and passionate—but other times he just flies off the handle. I could sense he was getting impatient with me, said I was too domineering, that I was like a bulldozer. I thought maybe he'd want someone a bit more passive. I thought he'd like her. But sometimes being passive just provokes the abusive streak in him. What if he's killed her? My God!"

"You're overreacting, Heather."

"Am I? It's been five times, and she hasn't come back. And you know that I can't return to my own universe unless she comes through and opens the portal. There has to be an exchange. I can't just go get her."

"It was a decision that she made," Heather said, standing beside the crowded table.

Looking alarmed at the discord among the identical women, the goateed barista stood close to the phone as if contemplating a call to 9-1-1.

Heather continued, looking at her counterparts. "You made up your mind. She made up her mind. We've all made up our minds—but we spend endless hours in here talking and discussing and gossiping. Dammit, my whole life has become a committee!"

"But what am I supposed to do about . . . her?" Intense said. She seemed to know something much more dangerous about Sasha than she had ever revealed to them, especially Gloomy.

"Do whatever you decide, and then you'll have to live with it."

Seeing the group of Heathers in the coffee shop, she wondered how many previous counterparts had already left the kaffeeklatsch, not wanting to hear about other lives or experience regrets for incorrect decisions. Of all the infinite universes, maybe only this handful of Heathers felt the need to commiserate with each other, share secrets and depend upon someone else.

She didn't even bother to remove her backpack. "I'd better be off doing my work. This isn't . . . what I want anymore. It's my life, after all, and I feel like I'm in a room full of dress rehearsals."

"Don't you want to wait and find out if the other Heather comes back?" said Intense. "Maybe she's all right, or maybe Sasha just kept her for an extra while."

"You know, I've decided it isn't relevant to me," she answered. "Because there are probably timelines where it happens every possible way. I need to focus on my life as a participant, not a spectator."

"Wait, you'll want to hear about what happened with Bruce last night," said Scar, raising her eyebrows. Several of the others leaned forward, eager as predators.

"What happened on your own date?" someone asked her before she could leave. "Weren't you supposed to go out with him again, too?"

But Heather turned away. "I'll just keep it to myself, for good or bad. Why should I live vicariously through all of you, when I can do it myself first-hand?"

From the set of troubled looks on their faces, Heather realized she had struck a nerve, that the thoughts had crossed most of their minds already. "Good luck," she said to herself and to all of them, then left the coffee shop behind. ■

(EDITOR'S NOTE: Other tales of Alternitech include "Music Played on the Strings of Time" [January 1993] and "Tide Pools" [December 1993].)

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Caretaker

Richard A. Lovett

Good intentions do not necessarily imply goodwill toward men. . . .

The robot's soundless entrance into his field of vision brought Loren Zarken back to reality with a start.

"What is it?" he demanded. His robots had been programmed not to let anything short of a true emergency interrupt his meditation. "It better be important."

"A space vessel is approaching, master. The scanners located it just ten minutes ago. It appears to be on course for this planet."

That might not actually qualify as an emergency, but it *was* important, and the central computer's programming was flexible enough to allow it to override the robots' specific commands. "Where is it coming from?"

"The direction of the globular cluster."

"I see." Zarken pondered for a moment. "Have they contacted us yet?"

"No. They seem to be unaware of our probes."

"Then we will be the ones to speak first. Give them permission to land. In fact, issue an invitation. I must learn more." He returned to his interrupted meditation, but somehow found it difficult to concentrate. *Visitors*, he thought. *It's happening all too quickly.*

Loren Zarken was absolute ruler of an entire solar system. He was also its sole occupant. His domain included one star, seven planets, and an indeterminate number of lesser bodies. He spent most of his time on the fourth planet from his sun, the only one that could easily support life.

For years he'd dwelt there in solitude, attended by automatons, isolated from civilization. At first, he'd found it difficult, for he was not a hermit by nature. But as the months melded into years and the years to decades, he'd fallen into a routine, with each day divided into carefully determined segments for manual labor, reading, recreation, and contempla-

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tion. It was a routine which, until today, hadn't been broken since the time—more than five years before—when an electrical fault had caused a fire in the robots' workshop.

The planet was perfect for Zarken's lifestyle. His garden grew rapidly, and native fruits and vegetables were plentiful. The world abounded with streams, lakes, snow-capped mountains, and wildlife. Zarken had visited hundreds of other planets throughout the galaxy, and he knew his was unique. Never before had he encountered such serenity or beauty. He sincerely doubted it could be found elsewhere.

The visiting spaceship touched down on a pillar of fire, turning the lush meadow grasses to ash and singeing the leaves of the nearest trees. Before the blackened meadow ceased smoking, the main airlock opened, a landing escalator slid outward, and a small group of men and women disembarked. Zarken strode forward to shake hands with a tall, blond man who appeared to be the leader.

"Welcome to my planet," he said. "I hope you enjoy your stay. Are you in charge of this expedition?"

"I am."

Zarken bowed formally. "Loren Zarken at your service."

The other looked startled. "No relation to *the* Loren Zarken, I suppose?"

"The inventor of the hyperdrive? We had our differences, but I still claim him as my grandfather."

The visitor's surprise became more pronounced. "Umm, excuse the bluntness, Mr. Zarken, but how can that be? You'd have to be—well, I'm not sure how old . . ." His voice trailed off in uncertainty.

Zarken smiled. "Five hundred twenty-nine standards, to be exact. It is amazing what money, medical science, and a disciplined daily routine can do for the body. Good cosmic ray shielding helps, too. And now, who might you be?"

"William Smith of Malor II, captain of the HV *Starbird*." HV was an old-fashioned designation for hypervessels—old enough that Zarken was surprised it was still in use. What other type of vessel could have made it all the way out here, to the farthest fringes of human expansion?

"Ah. Well, Mr. Smith, I again welcome you and your people to my planet. Make yourselves at home for the duration of your visit." Zarken stressed the last word ever so slightly, watching Smith's reaction. Smith's face, however, betrayed nothing, so Zarken continued his welcoming speech. He knew that he spoke as stiffly as one of his robots, but there is an art to communicating with real people, and the proper tone was eluding him.

Nevertheless, he continued as smoothly as he could manage. "If you and your crew would like to join me in my humble dwelling, I have prepared a feast to celebrate your arrival. It is not often that I have company. Unfortunately, you may find the facilities somewhat cramped. How many are in your party?"

"A hundred and two."

Zarken's felt dismay rise within him, but stuffed it into a mental compartment where it would not be apparent to his visitors, but where he could draw on it later, if needed. Only a colonizing vessel or a military craft would carry such a large crew, and this clearly wasn't a military expedition. Maybe they were merely stopping for a rest on their way somewhere else. He could always hope.

Trying to focus on that relatively agreeable thought, Zarken forced what he hoped would be interpreted as a gracious smile and continued his invitation. "I am afraid that all of you cannot join me for dinner. I am not really sure how many I *can* accommodate, but I know that I do not have room for anywhere nearly that many."

"That's all right, Mr. Zarken. I and my division chiefs—these people with me now—will gladly accept your invitation.

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The rest of my people can dine aboard ship." His lips twitched in the hint of a smile. "After such a long voyage, I'm not sure any of us really remember what it's like to spend time outside of our own little hive, anyway."

Zarken smiled politely at the obvious lie: the crew would undoubtedly be chafing for the opportunity to explore. Then, turning crisply on the balls of his feet in a style he'd learned during a long-ago stint in the military, he led his guests up the steep dirt path to his residence, a laser-hewn cavern at the base of a cliff. "I hope," he said as they entered the dining room, "that my servants have been able to find enough chairs. The last time I entertained was twenty years ago, for a scouting party out of Dennif."

"A scouting party?" Smith was perplexed. "The records didn't show that anyone had come here in the last hundred years."

"What records?"

"At the Bureau of Colonial Affairs."

"I see. You probably would have found the departure listed at the Bureau of Exploration, but that would have been all. The ship never returned." Zarken lowered his voice. "A few days after it left here, it had a . . ."—he groped for the right word—". . . a mishap, out in one of this system's asteroid belts. I received the distress signal, but by the time I got there it was too late."

"Oh . . ." Smith paused uncomfortably. "But that doesn't explain another thing that's been bothering me. There were no references to your presence."

"Strange. The records of my emigration must have been—ah—misplaced." Money, Zarken thought, can buy more than long life. But he didn't appear to have gotten everything he'd paid for. Apparently, not all references to his solar system had been removed from the Colonial Bureau's files. Zarken probed further. "Why are you so well informed about this planet's records?"

"Well, I see no reason to delay telling you. We've filed a claim for this world. We're here to start a colony."

Zarken had suspected as much, and initially, he was able to treat the confirmation of his fears as merely another piece of information to be filed for later analysis. But he had staked more than he'd realized on the long-shot possibility that this was merely a social call, and as the reality began to penetrate, his heart cried in anguish. Simultaneously, a detached corner of his intellect calmly cataloged the fact that even after so many centuries, he still had both the capacity for emotion and the ability to deceive himself. It was so rare that he had reason for either.

Smith jumped to the wrong conclusion. "Don't worry," he said, "our claim needn't conflict with yours. The anti-monopoly laws are still in force—none of our families can claim more than a hundred square kilometers. Since this area is much too mountainous for large-scale farming, we'll be settling elsewhere, probably on the other side of the planet."

With effort, Zarken willed himself back into the role of smiling host. After all, he'd feared for years that some shipload of colonists would stray into the system and settle, despite their lack of a legal claim. The arrival of a group expressly planning to colonize his world was a possibility he'd not considered, but the result was the same.

"We can talk more about these matters later," he said. "First, let's have dinner." Zarken clapped his hands, and the room was filled with robots carrying trays of steaming food.

"Amazing," Smith said as the robots removed the last of the dessert dishes. Zarken was seated at the head of the main table, with Smith immediately to his right. "You appear to rely almost entirely on robots."

"I must. One man could not do the work necessary to keep this place running. By the way, you haven't told me

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where your companions are from. Are you all from Malor?"

"No. We come from every part of the Cluster. I don't believe any two families are from the same world."

"But you are all from the Cluster. How times change. When I left, the Cluster wasn't sending out colonizing missions."

"We're one of the first. When did you leave?"

"About thirty years ago."

"The Cluster's grown a lot since then. Getting too civilized for us. We're on the move to greener pastures, to use an old expression."

"Have you ever considered what will happen when there are no more greener pastures?"

"Not really. It's not going to happen in my time, or my children's. It's been estimated that there are enough habitable planets to last another 1,200 years."

"And what happens after that?"

"Population control is already in effect on some of the older planets. We'll manage."

"But what about people like you? People who like the wilds?"

"I don't know. Intergalactic exploration?"

"Bah! Don't count on it. Trips would take too long. Do you know what the galaxy will be like? It'll be tame! No virgin planets! Think about it. *No* unexplored places. No wilderness, only a few small parks. All other land will be needed for farming. Do you want your descendents to inherit a galaxy like that?

"Have you ever seen Earth—or at least pictures of it? I left three hundred, maybe four hundred years ago, but even then it was almost half city. All the rest was under cultivation—*all of it!* Soon after your 1,200 years, the entire galaxy will be similar. Save this planet and the rest of this system. The Mittzer system is only a couple hundred parsecs away, and it's supposed to be nice. Go to Mittzer. There's plenty of room there. This world is one in a thousand. If you spare it, future generations will thank you. This world could someday become a park; the first and greatest in a series of Galactic parks."

"We have filed a claim for *this* planet," Smith said quietly. "We did not file for Mittzer—"

"A technicality!" Zarken exploded. "Out here there are no patrols. No one would notice for years, much less care. By the time it mattered, you'd be firmly established. You'd have no trouble getting the Bureau to shift your claim."

"No." Smith shook his head firmly. "We've spent a lot of time and money coming here. We aren't going to change our plans."

"I'd be glad to reimburse you."

Smith snorted. "That would do a whole lot of good way out here in the middle of nowhere."

"Please don't close your mind. Think of posterity."

Smith didn't respond.

"Sleep on it, then. For your children's sake. For your own sake."

An hour later, Sonja Nikolius and several other members of the dinner party were gathered in the *Starbird*'s rec room, which they had commandeered for an informal conference. "I'm glad I wasn't there," said Ian Goldman, the ship's first mate. "I don't like fanatics, and I'd have probably have told him so to his face." Goldman's duties had kept him aboard ship, and Sonja and her companions were bringing him up to date on the evening's events. "That last remark certainly sounded like a threat," he added. "I don't trust him."

"So what do you think we should do?" asked Sonja. "Charge out there with hunting rifles and gun him down?" Technically, she was the expedition's soil biologist, a role that wouldn't become important until after the *Starbird*'s crew was firmly entrenched dirtside, bioforming the native soils for efficient growth of Earth-normal crops. But she was also the farming crew's con-

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sensus pick for agricultural chief, in which capacity she'd been one of Zarken's dinner guests.

"Why not put some distance between us and him—now," said Kirk Michaels. Michaels' current role was as ship's engineer, a task that would shift to habitat construction once a colony site was selected. He hadn't liked what he'd seen about Zarken's "humble dwelling," and had been vocal about it from the moment he and Sonja were back aboard ship. "That guy's got a lot of technology in the hands of those robots," he said for about the tenth time in as many minutes.

Smith appeared in the rec room doorway, just in time to hear the last remark. "I've already posted a guard," he said, sliding into a lounge chair. Sonja watched her companions swivel to face him, their body language converting his chair into the head of an imaginary table. "I told them to warn once, then fire."

Michaels was anything but mollified. "But sir, we don't know how many of those robots he has. He could have dozens, maybe hundreds. And he's *got* to have blasting supplies. What if he loads the robots down with explosives and turns them into walking bombs? Even if hunting rifles can stop them—and we have no guarantee they would—he could get creative and hide them behind a bulldozer or something." He didn't have to add that the *Starbird* had no hope of stopping even that simple an assault. Colonizing expeditions were lightly armed: capable of defending themselves against predators, but not military aggressors. The people of the Cluster had learned the hard way that heavy weapons were dangerous for small, isolated parties. Expeditions were like marriages: occasionally they split up, and when they did, it could get vicious. It didn't pay to have too much firepower lying around. For each legitimate case of self-defense, there'd been a dozen coups, tin-pot dictators, and civil wars.

"We're definitely vulnerable as long as we're on the ground," Goldman chimed in. "It would be nice to be able to use the meteor shielding." That had been Michaels' second-favorite topic in the past few minutes. Even a small bomb could sufficiently disable the ship to require repair crews to go outside, where the robots could pick them off with Zarken's own hunting rifles. The repulsor shields would prevent this, but *Starbird* couldn't turn them on while in contact with the ground. If she did, she'd simply blow herself up, along with a sizeable chunk of the surrounding real estate. To bring the shields on line, the ship had to be airborne.

"I agree," said Smith. "But there's no sense in lifting off tonight. It would take too long to prep for launch. Zarken couldn't help but notice what we're doing, and it's a pretty significant breach of etiquette to slip away like that, without a good explanation. We'd just be forcing his hand—while we're still on the ground and still vulnerable. Right now, he's either not planning anything or hoping he's talked us into going somewhere else."

Sonja cleared her throat, and all eyes shifted to her, making her feel like one of her microbes, under a microscope. She wasn't quite sure why she'd accepted the role of ag chief, and one thing she was sure of was that she wouldn't seek higher office. "We've not talked about another option," she forced herself to say into the awkward silence.

"I'm all ears," Smith said.

"What if we just gave him what he wanted?"

"You mean, turn tail and run home?" Goldberg's shocked tone was worse than the scorn he was too-carefully avoiding.

"Not all the way, but Zarken's right about Mittzer—or anywhere else in its vicinity, for that matter. Those colonies would probably be happy to see us."

Michaels made no effort to conceal

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his disgust. "No way," he said. "I signed on to help build a *new* world, not play second fiddle on someone else's. If I'd wanted that, I could have stayed in the Cluster." He didn't have to add that Mittzer, while indeed close, was back in the direction they'd come from. As long as they were this far out on the frontier, retreating was the last thing he'd want to do.

"What do you think of his 'galactic park' idea?" Smith asked. His voice was modulated to a tone of perfect neutrality, but Sonja had long ago realized that this was a sign that she must proceed with caution. Still, she owed the captain an honest answer. "It's not without merit," she said after a pause to find exactly the right words. "But it's impractical. Parks are afterthoughts, created from land that was unwanted during the first waves of settlement. Right now, nobody's going to listen to the idea, even if a thousand years from now, our descendents wind up wishing someone had." She hesitated again. "But I was thinking about something simpler. Do we really want to share a planet with this guy? I don't trust him, either—more, I think, than I hate the thought of spending more time aboard this ship. And I myself don't mind playing 'second fiddle.' Wherever we go will have plenty of worthwhile things for everyone to do."

"Speak for yourself," growled Michaels.

Smith rose from his chair, cutting off further discussion. "Enough," he said. "As long as we're still aboard ship, I'm captain, and this isn't yet a democracy. But even if it were, Sonja, I think you're outvoted. We're not about to go on to Mittzer or anywhere else." A chorus of nods confirmed the statement. "So, try to get a good night's sleep. By this time tomorrow, we'll have the whole planet between us and him, with a couple of satellites up there to keep an eye on him. He won't like it, but he'll just have to live with it. Eventually, he'll have no choice but to get used to us."

But Sonja wasn't so sure. Long after the others departed, she lingered in the rec room. Like most of the ag crew, she'd had a lot of time on her hands during the outbound journey. Most of the others had occupied themselves reading technical journals, looking for arcane bits of information that might aid their specialties. She'd been more interested in sociology, psychology, and political science—topics that might help the colonists interact as smoothly as possible once they spilled from the *Starbird*'s artificial environment into the free-for-all spaciousness of a new world.

In the process, she'd read a lot of history, and Zarken gave her the shivers.

Many of the worst deeds in history had been done by people who were sure they were right: people who were heroes in their own eyes. And she was convinced of one thing. Zarken was absolutely certain that he was right. He was even working toward a goal that wasn't totally absurd. Sonja shivered again. Smith was wrong. Zarken would never get used to them.

The next morning, Zarken bid the colonists a strained farewell and watched their ship lift off the meadow on which it had landed. As soon as it was airborne, he hurried to a sparsely furnished room on the lowermost level of his residence. There, a scanner was already plotting the ship's course.

"Computer," he barked. The tension that had been building inside him ever since Smith's ship had been spotted was coming to a head now, and he found it difficult to maintain the unemotional tone needed to control a computer effectively. "What is the destination of the colonizing ship?"

"Indefinite. It appears to be leaving this planet."

"Good." Zarken allowed himself a sigh of relief. Maybe Smith had reconsidered. Maybe—

"The colonizing ship is changing course," the computer announced. "It is

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now in a descending trajectory. It has also activated its meteor defenses."

"Fools!" They were going to land. Smith had ignored his request. He'd followed his original course only to mislead Zarken, and had held it only until he'd thought Zarken could do nothing to intervene.

"Transfer coordinates of intruder to laser control," Zarken commanded. He'd done this once before, and he'd do it again and again if he had to. *Why wouldn't anybody listen?!*

"Coordinates transferred."

"Prepare to fire."

Deep in a mountain forest, an immense laser amplifier rose from its subterranean armory. Zarken imagined he could feel the vibrations.

"Incoming message," the computer announced.

Zarken was caught off guard, but he supposed that it was inevitable that the colonists would still be scrutinizing his compound, however confident they might be that they were safe from anything he might be able to do. He considered ignoring the message, but one thing Zarken had never failed to be was polite.

"Put it through," he said.

Smith's voice was instantly on line, sounding as though the ship captain was in the room with him, only a few feet away. Zarken might have cut himself off from civilization, but he had a pair of drone ships that shuttled to and from the Cluster for shipments of the highest-grade technologies money could buy, purchased directly and untraceably from old-system suppliers. Even though he'd rather not need it, there was no reason not to have good communication equipment.

"What the Hell is that thing?" Smith demanded. Zarken smiled tightly to himself, glad that he was using voice-only monitors so his expression would not be misinterpreted. His pleasure came solely from the fact that Smith had finally allowed a crack in his so-cautious composure. In the chess game of politics, Zarken would have scored an important point. Unfortunately, this wasn't a debate. Left to themselves, the colonists would destroy the serenity of this planet. They would cut trees, plant crops, build houses. Traders would follow. At first, the impact would be minor, but within a few generations the entire world would be civilized. And it would be as much Zarken's fault as the colonists', for it was Zarken's family who'd given humanity the frightening ability to expand across the galaxy, faster than light.

"What does it look like it is?" he said, pleased to note that his tone of voice was flatter and more emotionless than when he'd been talking only to his computer.

"Whoa," said Smith. "Let's talk about this."

"We already have," Zarken said. "Two minutes ago, you gave me your answer." If only he could have used the family fortune to purchase the worlds he wanted to protect—he was rich enough to buy an entire frontier sector. But the colonial officials had been very firm in their foreclosure of that option. Some things, it seemed, just couldn't be bought. Some things had to be done. And there was only one thing Zarken could do now to continue to protect this, his favorite world.

"Maybe we can find a compromise." Smith was fighting to retain his composure, and in an abstract way, Zarken admired him for it. But it wasn't the admiration of one human for another. It was the admiration of a superior being for a lesser one that knew nothing better than to keep trying—the admiration of a child watching an inverted beetle struggle to right itself, not knowing the task was hopeless.

"There do not seem to be many options," Zarken said. "I offered you a chance to help save this planet, but you preferred to exploit it. I cannot imagine how you could now convince me that

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you are sincere."

As he'd been talking, Zarken had been watching the computer running through the laser's power-up routine. Now, the final status light flicked green. "Laser system operational," the computer announced.

There was a hiss of Smith's indrawn breath, and a babble of voices in the background. One was female, and Zarken had an image of a quiet young woman—a biologist of some kind—who'd seemed the most attentive at his party. In a different reality, they might have been allies. But some decisions are irrevocable, and she'd thrown in her lot with the planet's enemies.

"Wait—" Smith was saying again, but Zarken was no longer viewing him or Sonja or Michaels or any of the others as distinct beings, separate from the *Starbird* itself. He borrowed a centering ritual from his daily meditations, using it to blank his mind of the scraps of humanity that had fluttered into it with his unwelcome guests. Emotions had become alien to him—even useful ones like anger—and he knew it would be weeks before he regained his normal routine. For the moment, though, the centering ritual was sufficient.

"Fire," he said in a level voice.

An intense beam of x-rays shot into the sky. Being only electromagnetic radiation, it easily penetrated the force fields protecting the colonizing ship. Within seconds, thousands of tons of metal and one hundred and two colonists were vaporized.

Loren Zarken was absolute ruler of an entire solar system. He was again its sole occupant, dwelling in solitude, attended by automatons—and as slavish to his duty as any of his mechanical servants. He was not a hermit by nature, but he no longer had difficulty being one. ■

Life consists not in holding good cards but in playing well those cards you do hold.

—Josh Billings

I have seen what a laugh can do. It can transform almost unbearable tears into something bearable, even hopeful.

—Bob Hope

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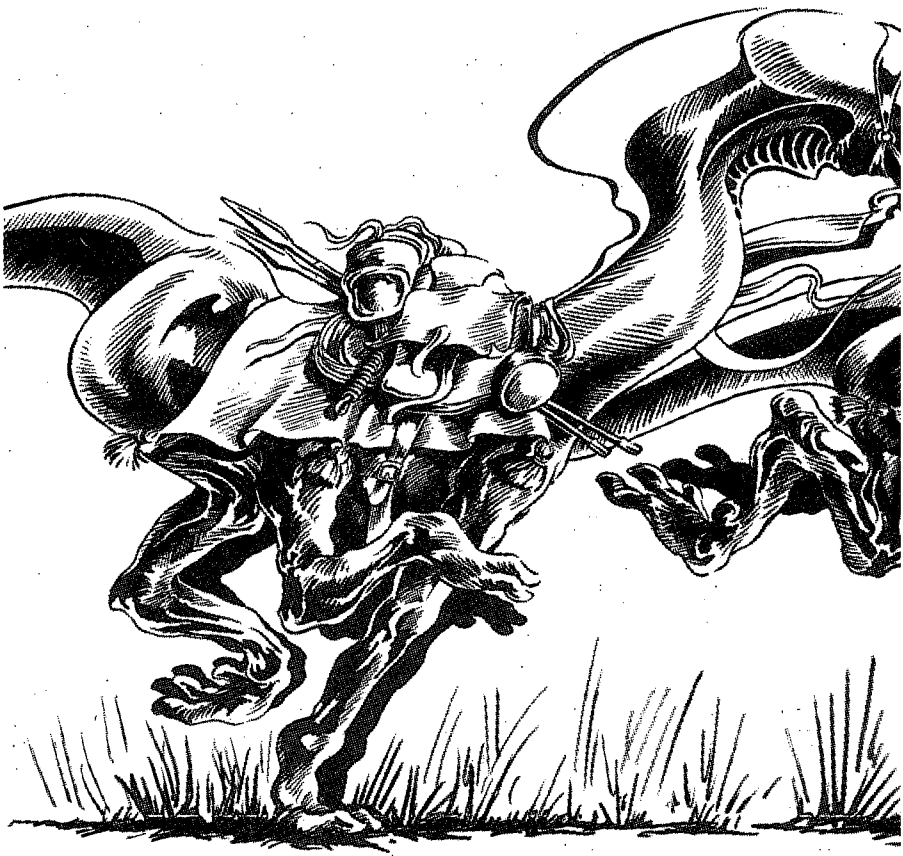
PeriAndry's Quest

Stephen Baxter

Illustration by John Allemand



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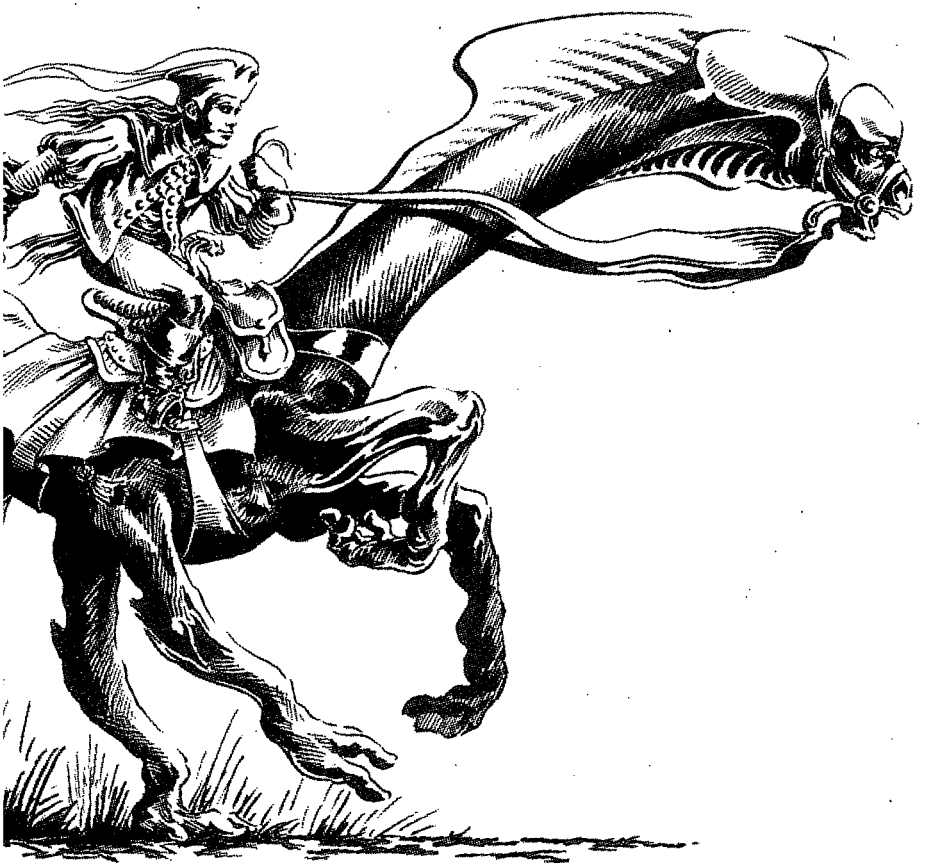
It was a *very* strange world, and its one central strangeness colored every aspect of life there. . . .



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The funerary procession drew up in the courtyard of the great House. The blueshifted light of Old Earth's sky washed coldly down over the shuffling people, and through a screen of bubbling clouds Peri glimpsed stars sailing indifferently by.

Peri took his place at the side of his older brother, MacoFeri. His mother CuluAndry, supported by her two daughters, stood behind him. ButaFeri's hearse would be drawn by two tamed spindlings. Peri's father had been a big man in every sense, a fleshy, loud, corpulent man, and now his coffin was a great box whose weight made the axles of his hearse creak.

Despite his bulk, or perhaps because of it, Buta had always been an efficient man, and he had trained his wife, sons, and daughters in similar habits of mind. So it was that the family was ready at the head of the cortege long before the procession's untidy body, assembled from other leading citizens of Foro, had gathered in place. Their coughs and grumbles in the chill semi-dark were a counterpoint to the steady wash of the river Foo, from which the town had taken its name, as it passed through its channeled banks across the Shelf.

"It's that buffoon of a mayor who's holding everybody up," MacoFeri complained.

Culu's face closed up in distress. BoFeri, Peri's eldest sister, snapped, "Hold your tongue, Maco. It's not the time."

Maco snorted. "I have better things to do than stand around waiting for a fat oaf like that—even today." But he subsided.

As the family continued to wait in the chill, servants from the Attic moved silently among them, bearing trays of hot drinks and pastries. The servants were dressed in drab garments that seemed to blend into the muddy light, and they kept their faces averted; the servants tried to be invisible, as if their trays floated through the air by themselves.

The delay gave PeriAndry, seventeen years old, an unwelcome opportunity to sort through his confused emotions. This broad circular plaza was the courtyard of ButaFeri's grand town House. The lesser lights of the town were scattered before the cliff face beneath which Foro nestled, dissipating in the enigmatic ruins at the town's edge. In this setting the House glowed like a jewel—but ButaFeri had always counseled humility. Foro had been a much prouder place before the last Formidable Caress, he said. The "town" as it was presently constituted seemed to have been carved out of the remains of a palace; a single mighty building within a greater city. And once, ButaFeri would say, even this wide courtyard had been enclosed by a vast, vanished dome, and over this ancient floor, now crossed by the hooves of spindlings, the richer citizens of a more fortunate time had strolled in heated comfort. Buta had been a wise man, but he had shared such perspectives all too infrequently with his younger son.

Just at that moment, as PeriAndry's sense of loss was deepest, he first saw the girl.

Suddenly she was standing before him, offering him pastries baked in the shape of birds. This Attic girl was taller than most of her kind; that was the first thing that struck him. Though she wore as shapeless a garment as the others, where the cloth draped conveniently he made out the curve of her hips. She was slim; she must be no more than sixteen. Her face, turned respectfully away, was an oval, with prominent cheekbones under flawless skin. Her mouth was small, her lips full. Her coloring was dark, rather like his own family's—but this was a girl from the Attic, a place where time ran rapidly, and he wondered if her heart beat faster than his.

As his inspection continued, she looked up, uncertain. Her eyes were a complex gray-blue. When she met his gaze, she gasped, startled, and the dense

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hot warmth of her breath drew him helplessly.

BoFeri, his elder sister, hissed at him. "Lethe, Peri, take a pastry or let her go. You're making an exhibition of us all."

He came back to himself. BoFeri was right, of course; a funeral was no place to be ogling serving girls. Clumsily he grabbed at a pastry. The girl hurried away, back to the Elevator that would return her to her Attic above the House.

MacoFeri had seen all this, of course. Buta's eldest son sneered, "You really are a spindling's arse, Peri. She's an Attic girl. She'll burn out ten times as fast as you. She'll be an old woman before you've started shaving . . ."

Maco's taunting was particularly hard for Peri to take today. After the ceremony, MacoFeri and BoFeri, as eldest son and daughter, the co-heirs of ButaFeri's estate and the only recipients of his lineage name, would sit down and work out the disposition of Buta's wealth. While Bo had shown no great interest in this responsibility, Maco had made the most of his position. "You love to lord it over me, don't you?" Peri said bitterly. "Well, it won't last forever, Maco, and then we'll see."

Maco blew air through his finely chiseled nostrils. "Your pastry's going cold." He turned away.

Peri broke open the little confection. A living bird, encased in the pastry, was released. As it fluttered up into faster time the beating of its wings became a blur, and it shot out of sight. Peri tried to eat a little of the pastry, but he wasn't hungry, and he was forced to cram the remnants of it into his pocket, to more glares from his siblings.

At last the cortege was ready. Even the Mayor of Foro, a wheezing man as large as ButaFeri, was in his place. Maco and Bo shouted out their father's name and began to pace out of the courtyard. The procession followed in rough order. The spindlings, goaded by their drivers, dipped their long necks and submitted to the labor of hauling the hearse; each animal's six iron-shod hooves clattered on the worn tiles.

The road they took traced the managed banks of the river Foo. Rutted and worn, it ran for no more than half a mile from the little township at the base of the cliff and across the Shelf, and even at a respectfully funereal pace the walk would take less than half an hour. As they proceeded, the roar of falling water slowly gathered.

The Shelf was a plateau, narrow here but in places miles wide, that stretched into the mist to left and right as far as Peri could see. Behind the Shelf the land rose in cliffs and banks, up towards mistier heights lost in a blueshifted glare; and before it the ground fell away towards the Lowland. Foro was just one of a number of towns scattered along the Shelf, whose rich soil, irrigated by ancient canals, was dense with farms. Peri knew that representatives of towns several days' ride away had come to see off Buta today.

At last the hearse was drawn up to the very edge of the Shelf. The family took their places beside the carriage. Peri's mother had always had a fear of falling, and her daughters clustered around her to reassure her. There was another delay as the priest tried to light her ceremonial torch in the damp air.

The edge was a sheer drop where, with a shuddering roar, the river erupted into a waterfall. Reddening as it fell, the water spread out into a great fan that dissipated into crimson mist long before it reached the remote plain far below. The Lowland itself, stretching to a redshifted horizon, was a mass of deep red, deeper than blood, the light of slow time. But here and there Peri saw flashes of a greater brilliance, a pooling of daylight. There was no sun in the sky of Old Earth; it was the glow of these evanescent ponds of pink-white light, each miles wide, reflecting from high, fast-moving clouds, which gave people day and night, and inspired their crops

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to grow.

Standing here amid this tremendous spectacle of water and light, and with the stars wheeling through their three-minute days above his head, Peri was rather exhilarated. He felt as if he was cupped in the palm of mighty but benevolent forces—forces that made his life and concerns seem trivial, and yet which cherished him even so. This perspective eased the pain of his father's loss.

At last the priest had her torch alight. With a murmuring of respectful words, she touched her fire to the faggots piled in the carriage around the coffin. Soon flame nuzzled at the box which confined ButaFeri.

Among the faggots were samples of Buta's papers—diaries, correspondence, other records—the bulk of which was being torched simultaneously at Buta's home. This erasure was the custom, and a comfort. When the next Formidable Caress came and civilization fell once more, everything would be lost anyhow—all painfully accumulated learning dissipated, all buildings reduced to ruin—and it was thought better to destroy these hard-won monuments now rather than leave them to the relentless workings of fate.

For long minutes, family, priest, and crowd watched the fire hopefully. They were waiting for an Effigy to appear, a glimpse of a miracle. The spindlings grazed, indifferent to human sentiment.

And in that difficult moment Peri saw the Attic girl again. Once more she moved through the crowd bearing a tray of steaming drinks, restoratives after the march from Foro. Now she was wearing a dress of some black material that clung languidly to her curves, and her dark hair was tied up so that the sweep of her neck was revealed. Peri couldn't take his eyes off her.

Maco nudged him. "She's changed, hasn't she? It's—what, an hour?—since you last saw her. But in that time she's been to the Attic and back; perhaps half a day has passed for her. And perhaps it's not just her clothes she's changed." He grinned and licked his lips. "At that age these colts can grow rapidly, their little bodies flowing like hot metal. I should know. There was a girl I had, oh, three years ago—an old crone by now, no doubt—but—"

"Leave me alone, Maco."

"I happen to know her name," Maco whispered. "Not that it's any concern of yours—not while our father burns in his box."

Peri couldn't help but give him his petty victory. "Tell me."

"Lora. Much good it will do you." Maco laughed and turned away.

There was a gasp from the crowd. A cloud of pale mist burst soundlessly from the burning coffin. It hovered, tendrils and billows pulsing—and then, just for a heartbeat, it gathered itself into a form that was recognizably human, a misty shell with arms and legs, torso and head. It was ButaFeri, no doubt about that; his bulk, reproduced faithfully, was enough to confirm it.

Buta's widow was crying. "He's smiling. Can you see? Oh, how wonderful . . ." It was a marvelous moment. Only perhaps one in ten were granted the visitation of an Effigy at death, and nobody doubted that ButaFeri was worthy of such an envoi.

The sketch of Buta lengthened, his neck stretching like a spindling's, becoming impossibly long. Then the distorted Effigy shot up into the blueshifted sky and arced down over the edge of the cliff, hurling itself after the misty water into the flickering crimson of the plain below. It was seeking its final lodging deep in the slow-beating heart of Old Earth, where, so it was believed, something of Buta would survive even the Formidable Caresses.

The watching dignitaries broke into applause, and, the tension released, the party began to break up. Peri did his best within the bounds of propriety to search for the girl Lora, but he didn't

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glimpse her again that day.

MacoFeri and BoFeri, brother and sister armed with the name of their dead father, went into conclave for two days. They emerged smiling, clearly having decided the fates of their siblings, their mother and the cast of servants in the House and its Attic. But they stayed silent, to PeriAndry's fury; they would take their own sweet time about revealing their decisions to those grateful recipients. Though his uncertainty was thereby prolonged, there was nothing Peri could do about it.

Maco's first independent decision was to organize a wild spindling hunt. He proclaimed the hunt would be a final celebration of his father's life. Despite his own turmoil, Peri could hardly refuse to take part.

A party of a dozen formed up on laden spindlings and galloped off along the Shelf. It was a young group; Maco, at twenty-three, was the oldest of them. He carried a bundle of goodwill letters to hand to the mayors of the towns they passed. And he prevailed upon his youngest sister KelaAndry to keep a chart of their travels; the world wasn't yet so well known that there wasn't more to be mapped.

As they rode, the roar of the Foo diminished behind them, and Foro was soon lost in the mist. It would likely take them many days before they even glimpsed their first wild spindling. After the Formidable Caress, it was said, the spindlings had come to graze in the very ruins of the ancient, abandoned towns, and to kill or capture them had been easy; but as the settlements at the foot of the cliff had grown again, the wild spindling herds were harder to find. But the journey itself was pleasant. The party settled into a comfortable monotony of riding, making camp, cooking, sleeping.

Of the dozen who traveled, seven were women, and there was a good deal of badinage and flirting. As early as the second night three couples had formed.

Peri had always been a vigorous, athletic type, and he had hoped that the hunt would take his mind off his own troubles. But he kept himself to himself, by day and by night.

It was not that he was inexperienced. Since the age of fifteen, his father had programmed for him a series of liaisons with local girls. The first had been pretty, compliant, and experienced, Buta's intention being to tutor his son and to build his confidence and prowess. After that had come brighter, tough-minded girls, and subtler pleasures followed as Peri learned to explore relationships with women who were his peers. Though he had formed some lasting friendships, nothing permanent had yet coalesced for him. That was only a matter of time, of course.

The trouble was that now it would not be his father selecting potential mates for him: no, from now on it would be his brother Maco, with perhaps a little advice from Bo. Perhaps the women on this very trip had been invited with that in mind—although Peri was sure Maco would sample the wares before allowing his inferior brother anywhere near them.

All this, and the lingering uncertainty over his destiny, was hard to bear. He seemed to lose confidence. He had no desire to mix with the others, had nothing to add to their bantering conversations. And as he lay in his skin sleeping bag, with the warm presence of his favorite spindling close by, Peri found his thoughts returning to Lora, the girl he had glimpsed on the day of his father's funeral.

He hadn't forgotten the surge of helpless longing he had felt as he studied her demure face, her carelessly glimpsed figure. She hadn't said a word to him, or he to her—and yet, though she was just a servant, he sensed there had been something between them, as elusive yet as real as an Effigy, there to be explored if only he had the chance. And how he longed for that chance!

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In his obsessive imagining, Peri constructed a fantasy future in which he would seek out the girl. He would show her his life, perhaps fill in the inevitable gaps in her learning—though not too quickly; he rather liked the idea of impressing her with his worldliness. They would grow together, but not through any seduction or displays of wealth: their Effigies would call to each other, as the saying had it. At last they would cement their love, and much of his detailed imagining centered on *that.*

After that, well, he would present their liaison to his family as an accomplished fact. He would ride out their predictable objections, claim his inheritance, and begin his life with Lora . . . At that point things got a bit vague.

It was all impossible, of course. There were few hard and fast laws in Foro; the community was too young for that, but it went against all custom for a Shelf man to consort with an Attic servant, save for pure pleasure. But for Peri, a romance with Lora would bring none of the complication of his liaisons with women from the town, none of the unwelcome overlay of inheritance and familial alliance—and none of his brother's gleeful manipulation, for this would be Peri's own choice.

Elaborating this comforting fantasy made the days and nights of the hunt easier to bear. Or at least that was so before Maco, with almost preternatural acuity, figured out what he was thinking.

It was a bright morning, a couple of weeks after the hunters had set off. They were running down a small herd of wild spindlings, perhaps a score of the animals including foals. Here the Shelf was heavily water-carved, riddled with gullies and banks, and the southern cliffs were broken into round-shouldered hills. The party was galloping at top speed, their spare mounts galumphing after them, and they raised a curtain of dust that stretched across the Shelf.

The spindlings' six-legged running looked clumsy, but was surprisingly effective, a mixture of a loping run with leaps forward powered by the back pair of legs. The spindlings' six-limbed body plan was unlike those of most of Old Earth's land animals, including humans. But then, so it was said, the spindlings' ancestors had not come from Earth. Unladen, the wild spindlings were naturally faster than their hunters' mounts, but, panicking, they would soon run themselves out.

Maco rode alongside Peri. He yelled across, "So how's my little brother this morning?"

"What do you want, Maco?"

Maco was very like his father when young—dark, handsome, forceful—but already he showed traces of Buta's corpulence in his fleshy jowls. "We've been talking about you. You're keeping yourself to yourself, aren't you? Head full of dreams as usual—not that there's room in there for much else. The thing is, I think I know what you've been dreaming about. That serving girl at the funeral. *Lora.* Your tongue has been hanging out ever since . . ." He clenched his fist and made obscene pumping motions. "Is she keeping you warm in your sack?"

"You're disgusting," Peri said.

"Oh, don't be a hypocrite. You know, you're a good hunter, PeriAndry, but you've a lot to learn. I think you will learn, though. You're certainly going to have plenty of opportunity."

Peri hauled on his reins to bring his spindling to a clattering halt. Maco, startled, rode on a few yards before pulling up and trotting back. Their two panting beasts dipped their long dusty heads and nuzzled each other.

Peri, furious now, said, "If you're talking of my inheritance, then tell me straight. I'm tired of your games."

Maco laughed. "You're not a very good sport, little brother."

Peri clenched his fists. "I'll drag you off that nag and show you what a good sport I am."

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Maco held up his hands. "All right, all right. Your inheritance, then: in fact, it's one reason I organized this hunt—to show you what I'm giving you."

"What do you mean?"

Maco swept his arm wide. "All the land you see here, across the width of the Shelf—all this belonged to Buta. Our father bought the land as a speculation from a landowner in Puul, the last town, half a day back. Right now it's got nothing much to offer but wild spindlings and scrub grass . . ."

"And this will be mine," Peri said slowly.

"It's a good opportunity," Maco said earnestly. "There's plenty of water in the area. Some of these gullies may actually be irrigation channels, silted up and abandoned. Good farming land—perhaps not for our generation, but certainly our children. You could establish a House, set up an Attic in those hills. You could make your mark here, Peri."

"This is a dismal place. My life will be hauling rocks and breaking dirt. And we're fourteen days' ride from home."

"*This* will be your home," Maco said. As he spoke of Peri's inheritance, Maco had seemed to grow into his role, sounding masterful, even wise. But now a brother's taunts returned, sly, digging under Peri's skin. "Perhaps you could bring your little serving girl. She can make you pastries all day and let you hump her all night . . ."

Peri blurted out, "It is only custom which keeps me from her."

Maco let his jaw drop. "Hey—you aren't serious about this foal, are you?"

"Why should I not be?"

Maco said harshly, "Kid, she lives in the Attic. Up there, for every day that passes for you, ten or twelve pass for her. Already months have gone by for her . . . I know from experience: those Attic girls are sweet, but they turn to dust in your hands, until you can't bear to look at them. Already your Lora must be ageing, that firm body sagging . . ."

If it had gone on a minute longer Peri might have lost control, even struck his brother, and the consequences would have been grave. But there were cries from across the plain. Peri saw that the party had backed the family of spindlings into a dry gully. Grateful for an excuse to get away, Peri spurred his mount into motion.

The spindlings, cornered, clustered together. There were more than a dozen adults, perhaps half as many colts. They seemed helpless as the hunters closed their circle.

But then four of the adults craned their necks high in the air, and their heads, three yards above their bodies, turned rapidly. With a whinny the four broke together, clattering up the gully's dusty wall. The movement was so sudden and coordinated they cut through the hunters' line and escaped.

The spindlings' long necks were an evolutionary response. On Old Earth, time passed more rapidly the higher you went, a few percent for each yard. The spindlings were not native to Earth, but they had been here more than a million years, long enough for natural selection to work. That selection had favored tall animals: with their heads held high, the longer-necked were able to think just a little faster and, over time, that margin of a few percent offered a survival advantage. Now these accelerated adults had abandoned the young, the old and feeble, but they would live to breed again.

The young hunters didn't care about evolutionary strategies. The aged adults made easy meat, and the captured youngsters could be broken and tamed. The hunters closed in, stabbing spears and ropes at the ready. Already they sang of the feast they would enjoy tonight.

But PeriAndry did not sing. He had made up his mind. Before the night came, he would leave the party. Perhaps this desolate stretch of remote scrubland was his destiny, but he was determined to explore his dreams first—and to

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achieve that he had to return home.

It took Peri just ten days to ride back to Foro. Each day he drove on as long as he could, until exhaustion overtook him or his mounts.

When he got home, he spoke to his mother briefly, only to reassure her of the safety of the rest of the hunting party, then retired to his room for the night.

His sister BoFeri insisted on seeing him, though, and she briskly extracted the truth of what he intended.

"Listen to me," she said. "We're different stock, we folk of the Shelf, from the brutes of the Attic, and similar lofty slums. Time moves at a stately pace here—and that means it has had less opportunity to work on us." She prodded his chest. "*We* are the ones who are truest to our past—we are the closest to the original stock of Old Earth. The Attic folk have been warped, mutated by too much time. Think about it—those rattling hearts, the flickering of their purposeless generations! The Attic folk aren't human as we are. Not even the pretty ones like Lora. Good for tupping, yes, but nothing more . . ."

"I don't care what you say, Bo, or Maco."

Her face was a mixture of his mother's kindness with Maco's hard mockery. "It is adolescent to have crushes on Attic serving girls. You are evading your responsibilities, Peri; you are escaping into fantasy. You are so immature!"

"Then let me grow up in my own way."

"You don't know what you will find up there," she said, more enigmatically. "I'm afraid you will be hurt."

But he turned away, and would not respond further.

He longed to sleep, but could not. He didn't know what the next day would bring. None of his family, to his knowledge, had ever climbed the cliff before, but that was what he must do. He spent the night in a fever of anticipation, clutching at shards of the elaborate fantasy he had inflated, which Maco had so easily seen and punctured.

In the morning, with the first light, he set out in search of Lora—if not yet his lover, then the recipient of his dreams.

There were two ways up the cliff: the Elevator, and the carved stairways. The Elevator was a wooden box suspended from a mighty arrangement of ropes and pulleys, hauled up a near-vertical groove in the cliff face by a wheel system at the top. This mechanism was used to bring down the servants and the food, clean clothes and everything else the Attic folk prepared for the people of the House; and it carried up the dole of bread and meat that kept the Attic folk alive.

The servants who handled the Elevator were stocky, powerful men, their faces greasy with the animal fat they applied to their wooden pulleys and their rope. When they realized what Peri intended, they were startled and hostile. This dismayed Peri; though he had anticipated resistance from his family, somehow he hadn't considered the reaction of the Attic folk, though he had heard that among them there was a taboo about folk from the House visiting their aerial village—not that anybody had ever wanted to before.

But anyhow he had already decided to take the stairs. He imagined the simple exertion would calm him. Ignoring the handlers, without hesitation he placed his foot on the first step and began to climb, counting as he went. "One, two, three . . ."

These linked staircases, zigzagging off into the blue-tinged mist over his head, had been carved out of the face of the cliff itself; they were themselves a monumental piece of stonework. But the steps were very ancient and worn hollow by the passage of countless feet. The first change of direction came at fifty steps, as the staircase ducked beneath a protruding granite bluff. "Fifty-four, fifty-five, fifty-six . . ." The staircase

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was not excessively steep, but each step was tall. By the time he had reached a hundred and fifty steps, he was out of breath, and he paused.

He had climbed high above Foro. The little town, unfamiliar from this angle, was tinged by a pinkish redshift mist. He could see people coming and going, a team of spindlings hauling a cart across the courtyard before his House. He imagined he could already see the world below moving subtly slower, as if people and animals swam through some heavy, gelatinous fluid. Perhaps it wasn't the simple physical effort of these steps that tired him out, he mused, but the labor of hauling himself from slow time to fast, up into a new realm where his heart clattered like a bird's.

But he could see much more than the town. The Shelf on which he had spent his whole life seemed thin and shallow, a mere ledge on a greater terraced wall that stretched up from the Lowland to far above his head. And on the Lowland plain, those pools of daylight, miles wide, came and went. The light seemed to leap from one transient pool to another, so that clusters and strings of them would flare and glow together. It was like watching lightning spark between storm clouds. There were rhythms to the sparkings, though they were unfathomable to Peri's casual glance, compound waves of bright and dark that chased like dreams across the cortex of a planetary mind. These waves gave Old Earth a sequence of day and night, and even a kind of seasonality.

He continued his climb. "One hundred and twenty-one, one hundred and twenty-two . . ."

He imagined what he would say to Lora. Gasping a little, he even rehearsed little snippets of speech. "Once—or so it is said—all of Old Earth enjoyed the same flow of time, no matter how high you climbed. Some disaster has disordered things. Or perhaps our stratified time was given to us long ago for a purpose. What do you think?" Of course his quest was foolish. He didn't even know this girl. Even if he found her, could he really love her? And would his family ever allow him to attain even a fragment of his dreams? But if he didn't try he could only imagine her, up here in the Attic, aging so terribly fast, until after just a few years he could be sure she would be dead, and lost forever. "Ah, but the origin of things hardly matters. Isn't it wonderful to know that the slow rivers of the Lowlands will still flow sluggishly long after we are dead, and that in the wheeling sky above stars explode with every breath you take?" And so on.

At the Shelf's lip, where his father's pyre still smoldered, he saw the Foo waterfall tumble into space, spreading into a crimson fan as it fell. Buta had once tried to explain to him *why* the water should spread out instead of simply falling straight down. The water, trying to force its way into the plain's glutinous deep time, was pushed out of the way by the continual tumble from behind, and so the fan formed. It was the way of things, Buta had said. The stratification of time was the key to everything on Old Earth, from the simple fall of water to the breaking of human hearts.

At last the staircase gave onto a rocky ledge. He rested, bent forward, hands on his knees, panting hard. He had counted nine hundred steps; he had surely climbed more than two hundred yards up from the Shelf. He straightened up and inspected his surroundings.

There was a kind of village here, a jumble of crude buildings of piled stone or wood. So narrow was the available strip of land that some of these dwellings or store-rooms or manufactories had been built in convenient crevices in the cliff itself, connected by ladders and short staircases. This was the Attic, then, the unregarded home and workplace of the generations of servants who served the House of Feri.

He walked along the Attic's single

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muddy street. It was a grim, silent place. There were a few people about—some adults trudging wearily between the rough shanties, a couple of kids who watched him wide-eyed, fingers picking at noses or navels. Everybody else was at work, it seemed. If the children were at least curious, the adults were no friendlier than the Elevator workers. But there was something lacking in their stares, he thought: they were sullen rather than defiant. At the head of the Elevator the pale necks of tethered spindlings rose like flowers above weeds. They were here to turn the wheel that hauled the Elevator cage up and down. One weary animal eyed him; none of its time-enhanced smartness was any use to it here.

Near some of the huts, cooking smells assailed him. Though it was only morning yet, the servants must be working on courses for that evening's dinner. The hour that separated two courses on the ground corresponded to no less than ten hours here, time enough to produce dishes of almost magical perfection, regardless of the unpromising conditions of these kitchens.

A woman emerged from a doorway, wiping a cauldron with a filthy rag. She glared at Peri. She was short, squat, with arms and hands made powerful by a lifetime's labor, and her tunic was a colorless rag. He had no idea how old she was: at least fifty, judging from the leathery crumples of her face. But her eyes were a startling gray-blue—startling for they were beautiful despite their setting, and startling for their familiarity.

He stood before her, hands open. He said, "Please—"

"You don't belong in blueshift."

"I have to find somebody."

"Go back to the red, you fool."

"Lora," he said. He drew himself up and tried to inject some command into his voice. "A girl, about sixteen. Do you know her?" He fumbled in his pocket for money. "Look, I'll make it worth your while."

The woman considered his handful of coins. She pinched one nostril and blew a gout of snot into the mud at his feet. But, ignoring the coins, wiping her hands on her filthy smock, she turned and led him further into the little settlement.

They came to the doorway of one more unremarkable shack. He heard singing, a high, soft lilt. The song seemed familiar. His breath caught in his throat at its beauty, and, unbidden, fragments of his elaborate fantasy came back to him.

He stepped to the doorway and paused, letting his eyes adapt to the gloom. The hut's single room contained a couple of sleeping pallets, a hole in the ground for a privy, and a surface for preparing food. The place was hot; a fire burned in a stone-lined grate.

A woman stood in one shadowed corner. She was ironing a shirt, he saw, wrestling at tough creases with a flatiron; more irons were suspended over the fire. The work was obviously hard, physical. The woman stopped singing when he came in, but she kept laboring at the iron. Her eyes, when they met his, were unmistakable, unforgettable: a subtle gray-blue.

For a moment, watching her, he couldn't speak, so complex and intense were his emotions.

That could be my shirt she's ironing: that was his first thought. All his life he had been used to having his soiled clothes taken and returned as soon as he wanted, washed and folded, ironed and scented. But here was the cost, he saw now, a woman laboring for ten hours for every hour lived out by the slow-moving aristocrats below, burning up her life for his comfort. And if he lived as long as his father, he might see out *ten generations* of such ephemeral servants before he died, he realized with a shock: perhaps even more, for he could not believe that people lived terribly long here.

But she was still beautiful, he saw with relief. A year had passed for her in the month since he had seen her last,

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and that year showed in her; the clean profile of a woman was emerging from the softness of youth. But her face retained that quality of sculpted calm he had so prized on first glimpsing it. Now, though, there was none of the delicious startle he had seen when he had first caught her eye; in her expression he saw nothing but suspicion.

He stepped into the hut. "Lora—I know your name, but you don't know mine . . . Do you remember me? I saw you at my father's funeral—you served me pastries—I thought then, though we didn't speak, that something deeper than words passed between us . . . Ah, I babble." So he did, all his carefully prepared speeches having flown from his head. He stammered, "Please—I've come to find you."

Something stirred on one of the beds: a rustling of blankets, a sleepy gurgle. It was a baby, he realized dimly, as if his brain was working at the sluggish pace of the ground. Lora carefully set down her iron, walked to the bed and picked up the child. No wonder her song had seemed familiar: it was a lullaby.

She had a baby. Already his dreams of her purity were shattered. The child was only a few months old. In the year of her life that he had already lost, she must have conceived, come to term, delivered her child. But the conception must have happened soon after the funeral . . .

Or at the funeral itself.

She held out the child to him. "Your brother's," she said. They were the first words she had spoken to him.

He recoiled. Without thinking about it, he stumbled out of the hut. For a moment he was disoriented, uncertain which way he had come. The dreadful facts slowly worked into his awareness. *Maco*: had he really wanted her—or had he taken her simply because he could, because he could steal her from his romantic fool of a younger brother?

The old woman was here, the woman with Lora's eyes—her mother, he realized suddenly. "You mustn't be here," she growled. "You'll bring harm."

In his befuddled state, this was difficult to decode. "Look, I'm a human being as you are. You've no reason to be frightened of me . . . This is just superstition." But perhaps that superstition was useful for the House folk to maintain, if it kept these laboring servants trapped in their Attic. And this mother's anger was surely motivated by more than a mere taboo. He didn't understand anything, he thought with dismay.

The woman grabbed his arm and began to drag him away. Still dazed, his emotions wracked, he allowed himself to be led through the mud. There seemed to be more people about now. They all glared at him. He had the odd idea that the only thing that kept them from harming him was that it hadn't occurred to them.

He reached the Elevator. The boxy cage was laden with cereals, fruit, platters of cold meat, pressed tablecloths. It was the stuff of a breakfast, he thought dully; no matter how much time had elapsed up here, on the ground the House had yet to wake up. He took his place in the cage and waited for the descent to begin, with as much dignity as he could muster.

". . . And you can go too, you with your red-tinged bastard!"

He turned. The scowling woman had dragged Lora out of her hut and had hauled her by main force to the Elevator. For a second Lora resisted; holding her child, she met Peri's eyes. Perhaps if he had acted then, perhaps if he had found the right words, he could have saved her from this dreadful rejection. But there was nothing inside him, nothing left of the foolish dream he had constructed around this stranger. Shamed, he looked away. With a final shove the hard-faced woman deposited Lora inside the cage.

As they waited for the captive spindlings to start marching in their pen, Peri and Lora avoided each other's gaze,

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as if the other didn't even exist.

The Elevator descended. Peri imagined slow time flowing through him once more, dulling his wits. His mood became sour, claustrophobic, resentful. But even as he cowered within himself, he reflected how wrong BoFeri had been. These Attic folk couldn't be so different from the people of the Shelf after all, not if a son of the House could sire a baby by an Attic woman.

At last the Elevator cage thumped hard against the ground. The heaps of cold meat and tablecloths slumped and shifted.

Peri threw open the gate—but it was Lora who pushed out of the cage first. She ran from the Elevator, away from the House, and made for the cobbled road that led to Buta's pyre by the edge of the Shelf. Peri, moved by shame, wanted nothing more to do with her. But he followed.

At the edge of the Shelf he came on his eldest sister BoFeri. She was feeding more papers into the smoldering heap of the pyre. For all the time he had spent in the Attic, here on the Shelf it was still early morning.

The girl Lora was only a few yards away. Clutching her baby she stood right on the edge of the Shelf and peered down at the waterfall as it poured into the red mist below. The wind pushed back her hair, and her beautiful face glistened with spray.

Bo eyed Peri. "So you went up into the Attic." She had to shout over the roar of the Foo. "And I suppose that's the girl Maco tupped so brazenly at Buta's funeral."

Peri felt as if his world was spinning off its axis. "You knew about that? Was I the only one who didn't see?"

Bo laughed, not unkindly. "Perhaps you were the one who least wanted to see. I said you would be hurt if you went up there."

"Do you think she's going to jump?"

"Of course." Bo seemed quite unconcerned.

"It's my fault she's standing there. If I hadn't gone up, they might have let her be. I have to stop her."

"No." Bo held his arm. "She has no place in the Attic now. But what will she do here, with her half-breed runt? No, it's best for all of us that it ends here. And besides, she believes she has hope."

It was a lot to take in. "Best for all of us? How? And—hope? Hope of what?"

"*Look down*, Peri. The Lowland is deep beneath us here, for the waterfall has worn a great pit. Lora believes that if she hurls herself down, she and her baby will sink deeper and deeper into slow time. She won't even reach the bottom of the pit. Her heart will stop beating, and she and her baby will be preserved like flies in amber. There have been jumpers before, you know. No doubt they are there still, arms flung out, their last despairing thoughts frozen into their brains, trapped in space and time—as dead as if they had slit their throats. Let her join that absurd flock."

Lora still hesitated at the edge, and Peri wondered if she was listening to this conversation. "And how is her death supposed to benefit us?"

BoFeri sighed. "You have to think in the long term, Peri. Maco and I enjoyed long conversations with Buta; our father was a deep thinker, you know . . . Have you never thought how vulnerable we are? The Attic folk live ten times as fast as we do. If they got it into their heads to defy us, they could surround us, manufacture weapons, bombard us with rocks—destroy us before we even knew what was happening. And yet that obvious revolution fails to occur. Why? Because, generation by generation, we siphon off the rebels, the defiant ones, the leaders. We allow them to destroy themselves on the points of our swords, on our guillotines or scaffolds—or simply by hurling themselves into oblivion."

Again Peri had the sense that Lora was

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listening to all this. "So each generation we cull the smart ones. We are selectively breeding our servants."

"It's simple husbandry," Bo said. "Remember, ten of their generations pass for each one of ours . . ." She studied him, her face, a broader feminine version of his own, filled with an exasperated kindness. "You're thinking this is inhuman. But it isn't—not if you look at it from the correct point of view. While the Attic folk waste their fluttering lives above, they buy us the leisure we need to think, to develop, to invent—and to make the world a better place for those who will follow us, who will build a greater civilization than we can imagine, before the next Caress comes to erase it all again.

"My poor baby brother, you have too much romance in your soul for this world! You'll learn, as I've had to. One day things will change for the better. But not yet, not yet."

Lora was watching the two of them. Deliberately she stepped back from the edge of the Shelf and approached them. "You think blueshift folk are fools."

Bo seemed shocked to silence by Lora's boldness. Even now, Peri was entranced by the blaze of light in the girl's face, the liquid quality of her voice.

"Addled by taboo, that's what you think. But *you* can't see what's in front of your nose. Look at me. Look at my coloring, my hair, my height." Her pale eyes blazed. "Three of your seasons ago, my mother was as I am now. MacoFeri took what he wanted from her. He left her to grow old, while he stayed young—but he left her *me*."

For Peri the world seemed to swivel about her suddenly familiar face. "You're Maco's daughter? *You're my niece*?"

"And," she went on doggedly, "despite our shared blood, now MacoFeri has taken what he wanted of me in turn."

Peri clenched his fists. "His own daughter—I will kill him."

Bo murmured, "It's only the Attic. It doesn't matter what we do up there. Perhaps it's better Maco has such an outlet for his strange lusts . . ."

Lora clutched her baby. "You think we are too stupid to hate. But we do. Perhaps things will change sooner than you think."

She wiped the mist from her baby's face, and walked away from the cliff. Around her, the flickering light of day strengthened.

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Greetings from Kudesh

J.T. Sharrah

Dealing with an alien culture can give new meaning to "Put your money where your mouth is"—especially if there are *some* similarities.

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Transcript of vocording made by Naomi Pollard: cultural exchange student and missionary from the United Church of Christ to the planet Kudesh (Tau Ceti II).

Sound of bird chatter. A flurry of wind. Shuffling footfalls. Rustling leaves.

M'reska, Mom and Dad.

And m'reska, Tom.

Hello, Reverend Silas, and hello, Clarice and Jason and Charles and Marsha, and m'reska to any other members of the congregation who might be listening to this.

I finally decided to make a recording, but before I go any further, let me explain why this is just a vocording and not a vidcording. The Terran authorities at Musambik won't allow us to use official channels for our private correspondence. That's a big no-no. I tried to convince them that I wanted to send a progress report back to the organization that sponsored me—which, if true, wasn't the whole truth and nothing but. Not that it mattered. They weren't fooled, permission was denied, and the transmission costs for a vid are 'way beyond the max I can afford. So we'll have to settle for audio only. Plus some still photos. I think I can squeeze a few snapshots into the datastream without going too far over budget. But no moving pictures. And that's a shame, too, because it's really beautiful here, and I'd like to show it to you, and I would if I could, but I guess I can't. I'll do my best to describe it, but I can tell you even before I try that my best won't be good enough. Some of this you've got to see to believe.

Right now I'm walking from Jokktra to Makkalapul for my afternoon language class.

Kudeshti voice: M'reska!

M'reska.

Kudeshti voice: Bikhira parna?

Bikhira andari. Sul.

If you hear me talking to Kudeshti along the way, that's because everyone says, "M'reska," and I have to answer them back. So don't think I'm weird if I start babbling gibberish. The people seeing me do this will probably think I'm weird anyway—strolling down the trail, talking to myself—but it's not as if I'm going to ruin my reputation or anything like that. The Kudeshti think I'm kind of strange to begin with.

I figured the best way to let you know how Kudesh is would be to take you for a walk with me. At the moment, I'm going by two sets of . . .

Kudeshti voice: M'reska. Nivara irkut, benka.

M'reska, skallakit.

. . . I'm going by two sets of makiti—those are the big draft animals that they harness to plows the way our ancestors used to yoke oxen to plows. Just up ahead is the local bakku mill, and beside that is the kanazuwa—sort of a teahouse where the Kudeshti hang out. Except that the "tea" they serve is intoxicating. I call it a "teahouse" because a kanazuwa *is* more like a teahouse than a pub or a saloon. If the Kudeshti go in for drunken brawls, I've never seen one. They indulge, but they don't overindulge, if you know what I mean.

The place where I live—this whole region, including Jokktra and Makkalapul and Indiba and Takisuka and dozens of other little towns—is called "Djeradar." There isn't a city hereabouts. And what it amounts to is . . . Djeradar is just a collection of villages, and the villages are just collections of huts, and the huts are just collections of sticks held together with mud. Pretty primitive, mostly. The nearest big community—S'murkun—isn't all that near, and so the district was named after the temple located in it, and we have a Djera Obidas temple in Makkalapul. "Djeradar" means "Djera's Place." That's where I'm going now—to the school associated with the temple.

I'll be coming to Hekli's house soon. I can see him there—sitting beside the path. He's one of the Kudeshti who was

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assigned to look after me when I first got here and didn't know my way around and couldn't ask because I didn't speak the language yet. He and I got pretty good at using gestures to communicate. *(Chuckles.)* He also played sort of a dirty trick on me. One of the gestures I was using a lot was a wave of my hand—you know, to say hello and to say goodbye. As long as I was waving up-and-down, that was fine, but—to a Kudeshti—waving from side-to-side is an insult. It means . . . well, never mind what it means. Take my word for it—folks on Kudesh don't take kindly to being waved off. And Hekli let me go right on doing that and never corrected me. I can consider myself lucky that none of the Kudeshti I insulted decided to give me a rough-and-tumble lesson in better manners.

I like Hekli, but sometimes he gives me a hard time, teasing me in Quetzal—the dialect of Kudeshka that's spoken here—and he also calls me "drissi" which means "butterfly." Sort of. Actually, the word refers to a colorful, harmless insect with gossamer wings that flits around from flower to flower. Let's call it the Kudeshda equivalent of a butterfly. Drissi are symbols for silliness on Kudesh. They use a lot of energy going here, there, and all over, but they never seem to accomplish anything and they never seem to get anywhere in particular.

If I keep on talking, Hekli'll get the impression that I'm a real idiot—even more foolish than a drissi—so I might put the recorder on pause for a little while, or I might just leave it on, and not talk. To you, I mean. Not talk to you while I'm chatting with Hekli. Yes. I think I'll do that.

Kudeshti voice: M'reska! M'reska, drissi. Baat teyla ranabeyley maa delo cha?

M'reska. Metayman ne jojan shu. *(Laughs.)* Suk-kur-ayud duluug diverte.

Brief pause.

What he basically said was: "Where are you going in such a big hurry?" And I told him I'm hurrying because I'm late for school, and I don't want my teachers to consider me "duluug diverte"—a naughty or inattentive student.

Once I get out of town, I'll be able to talk more freely, but I feel halfway silly because it *does* look like I'm talking to myself and people are staring at me as if I'm crazy.

Prolonged pause.

Okay. I think I'm sufficiently out of earshot so I won't be considered *too* strange.

Let me tell you a little bit about the huuna—the countryside. It's about as flat as northern Indiana here, but it's a whole lot lusher and much more heavily forested. I'm surrounded by dense foliage—sabkha and mizren trees, mostly, but there are also lots of the bofra trees that remind me of feather dusters, and groves of the alkamaar trees that yield an edible fruit which looks like a date but tastes like a blueberry. Much of the jungle in this vicinity has been cleared to make room for bakku fields, and the numanzu fields are spectacular at this time of year. Numanzu fields have to be . . . they're amazingly beautiful. Yellow and gold and lemony. They look like they've been gilded. The numanzu plants are about half a meter tall and the stalks are green and they're thickly covered with yellow blossoms. On my left are a bunch of bakku fields and the farmers are out harvesting them. The family I live with has been reaping bakku for the past twelve days or so. Most of the bakku has been cut by now, and I'm curious to see if they plant more bakku right away, or not, or what they do. I'm betting they'll do nothing. It's getting kind of late in the year to start another crop.

The town or little village I'm coming to now . . . we call it the "renchi" town, jokingly. "Renchi" means "ghost" in Quetzal. One day we were walking here, and there was a lump of clay in the middle of the trail with jaipu feathers sticking out of it, and my Kadheshti teacher,

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Raskalde, explained that sometimes they put those things in the path to keep the ghosts from coming back into town. I thought it was funny, and I told him that my people don't believe in ghosts, and he replied that I apparently *do* believe in ghosts because I believe that the whole universe was created and is ruled by a ghost—by a disembodied spirit . . . These people aren't technologically sophisticated, but they're not stupid or backward. Raskalde's a typical example. Raskalde's pretty shrewd.

Coming from Raskalde, that remark took me by surprise, but it's the kind of comment I'd *expect* Donald Mackenzie to make. Donald is an anthropologist, and he lives in Djeradar, too, but he's been here a lot longer than I have—ten or eleven Kudeshda years or however long it's been since the third expedition from Earth arrived. Donald's a supernice guy, and he took me under his wing and helped me to get settled, and I couldn't have asked for better guidance because Donald's very good at his job and I sometimes think he knows more about Kudeshda customs than the Kudeshti themselves. But Donald is a Nonbeliever. With a capital "N." I hope to make some converts among the Kudeshti, but trying to convert Donald would be like trying to fetch water in a sieve. It just ain't going to happen. I've *tried*. He and I have had some spirited debates, but neither of us even came close to changing our minds. I'm willing—even eager—to make a leap of faith, and he's not, and that's just the way it's going to be, I guess.

Haws of bird noise. Sound of flapping wings. Clucks and chitterings and squawks.

There are tons of birds all around here.

Kudeshti voice: M'reska.

Another Kudeshti voice: M'reska. Alsevni haklyt.

M'reska. M'reska.

They're taking baths. They won't come over here and talk to me now.

As I was saying . . .

Donald's really into bird watching, and I've been taking lessons from him. I kid him about it—I tell him he's turning me into an avian voyeur—but our little outings are fun, and I've learned to identify lots of the birds in this region . . . The lesh-sha are storklike creatures. They must be the ones that bring babies because they're big enough to do the job. You see them standing in the fields, and—at a distance—you can easily mistake them for people. And there's also a variety of crane called "vy-kha", and they're just as tall as the lesh-sha, and they have red heads and bright blue feathers, and they make eerie sounds at night. The zemaar are beautiful too. They're flightless birds that resemble ostriches except their legs are longer and their plumage is brighter. And they're *fast*. You don't see zemaar all that often in Djeradar. They're more common fifty klicks further south where the jungle gives way to savanna and they have a better chance of outrunning predators on the open plains.

Not all Kudeshda birds are that big—of course they aren't—but Kudesh *does* have more than its share of jumbo wildfowl, and that tends to confirm the theory that the Kudeshti themselves evolved from birds instead of mammals. Donald subscribes to that theory, and when he and I had just met—we were acquainted but we weren't *well* acquainted—he used to mention it every chance he got. At first, I didn't understand why, and then I realized he was baiting me—trying to entice me into denying the theory of evolution. *(Chuckles.)* Can you believe it? I told him that he shouldn't assume I'm an ignoramus just because I'm religiously devout. I'm well aware that the creation myth in *Genesis* was derived from an old Sumerian folktale. As for evolution . . . I informed him that our church considers the theory of evolution an established law of nature. The argument we make is that the laws of nature, including evolution, are evidence of God

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at work. The existence of a pocket watch presupposes the existence of a watchmaker. I didn't convince him, of course. He replied that the universe doesn't happen to be a pocket watch and let it go at that, but he's stopped needling me about evolution and hasn't mentioned it again. I got that much of a concession out of him.

Would you like to hear what my daily life is like?

Each morning I wake up at dawn or soon after. I don't need a wake-up call or an alarm clock because the wytzels won't let me oversleep. They're another variety of Kudeshda bird, and they start raising a ruckus as soon as the sun rises. Breakfast is sparse—a cup of prenba and maybe a chunk of bread or a bowl of bakku with syrup on it or something like that. Morning classes begin about three-quarters of a neeja after . . . No—wait. I'm *not* going to give estimates of time or distance in Kudeshda units. That will just confuse you. Never mind what a "neeja" is. It's not important. Forget it . . . Morning classes begin about an hour after sun-up, and I have to skedaddle to get to Makkalapul on time.

Like I said before, the school is run by the temple, and the teachers are the priests and priestesses of the temple. My classmates are two other cultural exchange students from Earth—Daniel and Kurt—and about twenty Kudeshti enweii—cubs or kids—whose level of education is roughly the same as ours. They're *very* young, haven't learned to read and write, are just as full of mischief as first-graders on Earth, but they're probably better behaved than I was myself when I was that age.

The class lasts for three hours, and then I have a three-hour break, and that's when I usually go back to Jokktra to take a shower or wash my clothes. The Jokktrans are lucky because they have artesian borings in the village. The water comes from way down deep and is safe to drink right out of the tap. The house where I live has its own boring, and I take my shower there—right at the meeting of two crossroads. It's kind of nice. No one stands around and watches me or anything. I just let the water pour over me and relax and look at the makiti going by and watch the nikanos playing tag in the treetops and nobody ever bothers me. So I don't really mind bathing outside, and I don't even think twice about it anymore. But I probably won't be doing it much longer. The weather's changing. The days are getting chillier. Autumn's coming. Pretty soon it'll be too cold to take a bath outdoors.

Speaking of which . . .

The axial inclination of Kudesh is 19.6 degrees—less than Earth's, but the planet still has enough of a tilt to give it seasonal variations . . . Eddisa. Luari. Nibasa. Sadul . . . Winter. Spring. Summer. Fall . . . At this latitude, winters are milder and summers are hotter than they are in Indiana, but the Kudeshti get the same cycle of four seasons that you do. There's a planting season and a growing season and a harvest season and a fallow season. I can't honestly say it's just like home, but it's pretty close. It's not all *that* different.

Believe it or not, the fact that winter comes to Djeradar has a direct bearing on my mission.

Actually, it has more than a bearing.

If this climate *wasn't* seasonal, I wouldn't *have* a mission.

I'm the only missionary who's ever been here. On Kudesh, I mean. Not just to Djeradar or the continent of Ascarth. I'm the only missionary who's ever been sent to this planet. The other cultural exchange students are . . . well, they're like Daniel. Or Kurt. They're experts at this, that, or what-have-you—a skill of some kind that they'll be teaching to the Kudeshti. In exchange, the Kudeshti will teach them the Kudeshda way of doing things. Sounds like a one-way deal—doesn't it?—with the super-sophisticated Terrans dispensing pearls of wisdom to the primitive Kudeshti. Actually, it's not. The Kudeshti have plenty to teach

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us. I understand that their healers have introduced our doctors to hundreds of herbs and fungi that have miraculous restorative properties, and I'm told that the Kudeshti routinely use catalyst chemistry to do things we'd have to build a factory to do. Quite a few of our scientists have been scratching their heads about *that*.

But I'm the exception—the *sole* exception so far—and the reason for that is . . .

Kudeshti voice: M'reska. Taikin yorsalov.

M'reska. Taikin karikul.

What he just said is one of those slang expressions that can't be translated exactly. The closest I can come to it is: "Time's a-wasting", and I told him I'd try not to waste any more of it. In other words, he knows I'll be tardy if I don't get a move on, and he was advising me not to dawdle.

Let's see . . . Where was I? Oh, yes. The seasons.

Winter. Spring. Summer. Fall.

This world—like ours—dies in winter and revives in the spring. So does the vegetation—or at least most of it. The crops are harvested in the autumn, and the fields lie barren all winter long, and they're restored to life when they're replanted in the spring.

And it's not only plants. Certain animals have life cycles that mirror this process. On Earth, bears and woodchucks are among the animals that hibernate—they seem to die in winter and come back to life in the spring—and other animals undergo a metamorphosis that's like a death and rebirth. Snakes shed their skins. Caterpillars are transformed into butterflies. There aren't any bears or butterflies on Kudesh—the drissi isn't *really* a butterfly, you understand—but there *are* Kudeshda critters with similar characteristics.

And then there's the sun. And the moons. And the stars. They, too, die but they don't stay dead. The sun sets at night and reappears the next morning. The moons—Kudesh has two of them—wane, disappear and return. And sky watchers see the constellations come and go according to the time of the year.

In ancient times, the Kudeshti had no explanations for these events. So they invented a story to account for them. It is the tale of Djera—the god who, like the world in winter, dies and comes back to life.

Don't you see? Like Jesus, Djera was supposed to have been resurrected. And *that's* why I'm here. The priests and priestesses of the temple were curious. They'd heard just enough about Christianity to realize that our beliefs have a certain resemblance to their beliefs. They wanted to know more. They specifically *requested* that a missionary be sent to them, and—of all the applications on file—mine was the one that was accepted. Lucky me, eh? I thought so at first, but I'm beginning to wonder just how lucky getting picked for this assignment was. I'm the one who gets to tell them that the resemblance between their religion and ours is only superficial. They already know that we worship a single God. Yes, but the implications of that—the conclusion that all other gods are false—my hunch is they'll be none too pleased to hear that. I'll try to break it to them gently.

A pause.

Know what? I seem to have lost my train of thought. And if you, Tom, are snickering and saying, "So what? That loco locomotive never left the station in the first place . . ." I can just *hear* you saying that. Little brothers are such a pain sometimes.

Another pause.

Yes. Okay. I remember. I was telling you about my daily routine and artesian borings and outdoor plumbing and stuff like that.

I wash my clothes in the same place where I take my showers. That's not as difficult as it sounds. The villagers make these bars of soap—I don't know what from, but they're green in color and

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they smell sweet—and you just rub the soap all over your clothes and scrub them. I don't beat them on rocks. Some people do, but that's hard on your clothes and I don't think getting a few extra bits of dirt out is worth all the wear and tear. My clothes are clean, and I'm getting pretty good at washing them by hand.

After the midday meal—which is the big meal of the day on Kudesh—I go back to class for the remainder of the afternoon. Different class, different teacher, same subject. Language. I *have* to master the language before I can even begin to do anything else, and so I get double doses of Quetzal every day. That isn't the normal procedure. The enweii who were in class with me that morning study different subjects in the afternoon.

Enweii . . . *(Chuckle)* . . . Kind of funny, isn't it, that the Kudeshka word for "schoolchildren" sounds a bit like the English word "ennui"? They sure enough *look* bored at times. That's something else we have in common with the Kudeshti. Our kids and their kids aren't real crazy about going to school, would rather be someplace else playing games.

Four days from now, I'll have to take a formal language test, but Raskalde gave me a mock language test yesterday, and he said that my performance was "leryda lathi kirachu"—a Kudeshka expression that could be loosely translated as "not too terribly godawful." I passed—maybe not with flying colors, but at least I didn't fail. My own opinion is that I'm not fluent yet—future tense, in particular, gives me a lot of trouble—but I'm improving steadily. I can conduct a conversation and make myself understood—most of the time, anyway—and I'm slowly but surely getting a grip on the written characters.

The Kudeshda system of writing is more like ancient Egyptian than any of the modern languages spoken—or written—on Earth. The hieroglyphs are pictographs that were originally symbols for the object they portrayed, but—as time went by—they came to represent the *sound* of the word for that object. So you use the symbol for "bakku" to write the first syllable of the word for "fear"—bakhara. Except when you don't. Some of the symbols have retained their original meanings, and others no longer refer to the actual object but to a whole class of objects. Depending on the context, the glyph for "bakku" can mean either "bakku" or "paramu" or "caltona"—bakku or food or grain—and if you're using it phonetically, it can be "bak" or "par" or "cal." All of which is *very* confusing. Donald speaks the language like a native—he rattles off whole paragraphs without pausing for breath—but he admits that the written language, even after all this time, still baffles him occasionally.

In six days—if I pass my language test—I'll be allowed to deliver a sermon to the priests and priestesses of the temple. This will be my first opportunity to speak to them about our beliefs and about matters of faith. I will also be allowed to participate in one of their rituals—the ceremony that's performed when newcomers are initiated into the mysteries. Truth to tell, I'm kind of nervous about it all, but when you get right down to it, this is the main reason I came to Kudesh in the first place. Now's as good a time as any to begin.

Daniel and Kurt will also be giving lectures, but not as part of a temple ceremonial. Daniel is an expert on agriculture, and he'll be talking to a group of farmers about soil conservation and crop rotation. Kurt is a math whiz. He says he's going to revolutionize Kudeshda mathematics by introducing the concept of the zero.

There were about a hundred of us cultural exchange students on the ship that brought us to Kudesh, and we all got to know each other pretty well—the trip from the Sol system to Tau Ceti wasn't exactly short, you know. I got along fine with most of my shipmates, but the

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group dispersed when we arrived on Kudesh, and Daniel and Kurt were the only ones assigned to Djeradar along with me. Of the whole bunch of us, the one likeliest to make a significant contribution is, in my opinion, Daphne Wilkinson—a professional linguist who's trying to master the three dialects of Kudeshka that are most widely spoken. After she's done that—and I don't envy her *that* little task—she'll make vidcordings from which the next generation of cultural exchange students can learn. When they get here, they'll already be fluent in Quetzal or Mimbisha or Paicanza, and—unlike us—they won't have to waste so much time overcoming the communications barrier. That'll make a big difference. They can hit the ground running.

I'm on good terms with Daniel and Kurt, but of the two of them, I feel closer to Daniel. He's my buddy. And he *loves* to go fishing. Hear that, Dad? You and Daniel would understand each other. He spends most of his spare time on the river—sometimes with a homemade rod and reel, and sometimes with one of the harpoons that the Kudeshti use to catch fish. He says they're geniuses at this kind of fishing, and he's trying to learn their methods. With considerable success, too. He rarely returns empty-handed, but it took him a while to get the knack of spearfishing, and it took him even longer to recognize which varieties of Kudeshda fish are edible. The Kudeshti used to laugh at him when they saw his "catches." Half of the fish he brought back with him were either bad tasting or poisonous. They've stopped making fun of him now, though. Using Terran equipment, he always was a good fisherman, and now he's beating some of the Kudeshti at their own game.

Kudeshti voice: M'reska. Wakamutsi udipura.

M'reska. Narobu baruddi.

Here we are—on the outskirts of Makkalapul—and I'm about to enter the marketplace. For the time being, I'd better stop recording.

Prolonged pause.

Sorry about the delay. It's been three—or has it been four?—days since the last time I talked to you. I intended to get back to you much sooner than this, but we've been getting ready for our language tests and preparing to give our lectures and I've been busier than a long-tailed cat in a room full of rocking chairs.

Kudeshti voice calling in the distance.

This is the day of the test—the *real* test—and I feel confident but a little nervous just the same. I'd be less worried if Raskalde were administering the test, but he's not. He won't be there. Neither will any of my other teachers. I'll be appearing before a committee of priests and priestesses who are all total strangers to me, and what they'll ask me is anybody's guess.

Kudeshti voice calling in the distance.

The procedure is fair and impartial and maybe that's what bothers me about it. Maybe it's *too* fair and impartial. When I walk into that examination chamber, the sight of a familiar, friendly face would be welcome. But no—my judges won't be friendly or unfriendly or biased in any way.

Kudeshti voice calling in the distance.

Raskalde's only advice is to stay composed and collected. He said: "How can you expect to face a firing squad calmly if you let a little thing like this scare you?"

Actually, I'm not sure I'm translating that correctly. *Firing squad?* That's what it sounded like—the phrase he used was "syd-dath akkit"—but there *are* no firearms on Kudesh. I asked Donald about it, and he, too, was unacquainted with the expression. If Donald's never heard of it, I figure it's got to be either really obscure slang or really specialized jargon.

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Kudeshti voice calling in the distance.

That guy you hear in the background is a peddler selling something. I can't make it out. I think he's talking Lagoda—sort of a pidgin tongue that's used in commerce between Quetzal and Mimbisha speakers. What they do is walk down the street yelling like that and customers come out to them. He may actually *be* a Mimbisha speaker, but it's also possible that he's a Quetzal speaker trying to sound like a Mimbisha speaker because the wares offered for sale by a Mimbisha speaker would be more exotic. The Kudeshti aren't above practicing a minor deception like that in the interests of good salesmanship.

Kudeshti voice: Da na rudziat kishne.

Donba. Ya kurgras.

This little kid wants me to take a picture of him riding on top of his makiti. Everyone mistakes this vocorder for a camera.

Kudeshti voice: Rudziat kishne. Juroz daigav.

Just a minute.

Donba. Ya rudziat elnith mobanai tu. Ya mascuri zambonga sulta.

I told him this isn't a maker-of-pictures but a preserver-of-words. At least, I *think* I told him something like that. "Mascuri" means "to preserve," but it usually refers to the process by which smoked meat is preserved. He may not have understood me.

Kudeshti voice crying.

Here comes a sad little girl . . . No. Correction: little guy. It's kind of hard to tell the difference when they're this young. He's seems to be upset about something.

Oh, ke biyo? Ke biyo?

More crying.

I asked him what's wrong, but he's too young to answer me. He hasn't learned to talk yet.

Unlike my photogenic little friend, I've never tried riding a makiti, but I've been up on top of a dakhir, and let me tell you—that's a real experience.

A dakhir is a huge creature—as big or bigger than an elephant. Not that a dakhir *looks* anything like an elephant. If you can visualize a tapir the size of an elephant, give him six legs, a spiked tail, and a snout like a rhinoceros, you'll get the general idea. The Kudeshti use them to chase wild makiti out of the jungle. Donald was invited to go on one of these makiti drives, and he got permission to bring me and Daniel and Kurt along with him.

We had an enormous dakhir—he was carrying five of us on his back—and the stars were still out when we left Jokktra. Imagine clinging to a creature as big as a hut, and you just have to trust your mount to know what he's doing because it's too dark to see him, much less where he's going. It was pretty scary. We had to skoonch down and keep our heads low to avoid tree branches and vines and dangling creepers. And we went tromping through the jungle, looking for a makiti, and we didn't find one for quite a while. And then we did. About two hours after sun-up, we found a whole family of makiti—a bull, a cow, and three calves. They were hiding in the underbrush, and what we did was . . . Did I mention that we had four Kudeshti on another dakhir with us? Well, we did, and we took our dakhir into the bush and came up behind the cow and chased her out. And then the other dakhir herded her back the way we'd come, and the calves followed their mother, and the bull followed his mate, and we followed the bull. He wasn't too happy about it, either. He was snorting and pawing the ground and bellowing like mad and trying to make up his mind whether to charge. He was only half the size of the dakhir but he was very fierce-looking. I think even our dakhir was nervous. But—in the end—the bull didn't charge, and we returned to Jokktra with all five makiti in tow. I took some photos, and I'll try to send them along with this recording.

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That was a fun day—very exciting—but Raskalde was furious. Not with me. He was mad at Donald. When Donald said he'd gotten permission to take me on this jaunt into the jungle, he meant he'd gotten permission from the drovers. He'd gotten permission to bring a bunch of greenhorns with him. He *hadn't* gotten permission from the temple. He hadn't even consulted the temple, and Raskalde was seriously bent out of shape about it. He told Donald that he had no business exposing me to danger, that the temple hadn't brought me all this way just to have me break my neck falling off a dakhir, and he called Donald "uz-drissi" (foolish) and "karbola" (irresponsible) and he added a lot of other names that I couldn't translate but I'm pretty sure a priest shouldn't be using language like that. And Donald returned fire. He, too, was using colorful language. He asked Raskalde if the temple thought it *owned* me just because it had made itself responsible for my training. And Raskalde retorted that I wasn't being trained to herd cattle, or—for that matter—to watch birds. He said that I'd come to Kudesh at great personal sacrifice, that I have a sacred duty to fulfill, that it's *his* duty as a priest of the temple to make sure I'm able to do my duty and I obviously can't do my duty if I'm already dead when it's time for me to do it, and he swore that he wasn't going to let a meddling shir-raz (that's an "unbeliever", but nastier—more like "blasphemer") interfere with me or what I had to do. Donald's answer to that was more or less what you'd suppose it would be. He recommended that Raskalde take all of his superstitious mumbo-jumbo and shove it up where the sun doesn't shine. And I guess you could say that the two of them did *not* part friends.

I'm fond of both of them, and I didn't like being caught in the middle, but the incident made me realize—maybe for the first time—just how *seriously* the temple takes me and my mission. You'll notice that Raskalde didn't have a thing to say about Daniel or Kurt. If Donald wants to take them joy riding in the jungle, Raskalde has no objections. If Donald puts their lives at risk on a makiti-drive, that's fine with Raskalde. Or so it would seem. Only me. He was only concerned for *my* safety. Should I be flattered? *(Laughs.)* Probably not. I don't think I'm being flattered. I *do* think I'm being prepped to perform a task that the elders of the temple consider genuinely important. And that's encouraging. That means they'll be receptive to my message. At least, I *hope* that's what it means.

Kudeshti voice: M'reska! Yazulkaya tabul.

M'reska. Jamara melaban ja nayar tornold? *(Laughs).*

Kudeshti voice: (Laughs.) Nydaras melaban ma zacta jondra ustraken.

That was Ingva. She's a . . . well, I started to say she's a "medicine woman," but that sounds like she's a fake, and that wouldn't be fair to her because she's not. Ingva's a herbalist who goes around gathering weeds and leaves and roots—all sorts of plants that have medicinal value—and when folks take sick or get injured, they come to her for a cure. And—more often than not—she cures them. She knows that today's *the* day—for my language test, that is—and she wished me luck, and I asked her if she had a cure for stupidity, and she said that "against stupidity even the gods strive in vain." She was quoting a popular proverb.

I like this section of Jokktra. The neighborhood is called "Omsilanith" or "Riverside." The houses are up on stilts and they have sloping roofs and some of them are brightly painted. The Kudeshti who live here are mostly kohati people—sailors and fishermen who make their living on the water. Lots of them live on board their boats or barges or trawlers or whatever, but those who *have* homes ashore tend to build them here—close to the river. In the rainy season, the water overflows the banks

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every once in a while. And so—stilts. The houses stand maybe two meters above ground level. It's the only form of flood insurance known on Kudesh.

The first time I came to Omsilanith was at Donald's suggestion. I'd told him how much I'd enjoyed going sailing as a kid, and he said he knew a Kudeshti named Jeholt who'd probably take me sailing if I wanted. I said yes, and Donald made the arrangements, but when I got my first look at Jeholt's boat, I thought Donald was playing a practical joke on me.

The *Ishkazar*—that was the name of this pile of junk: the *Wind Dancer*—wasn't a boat at all but a homemade raft that Jeholt and his pals had botched together from logs and lengths of rope and other odds-and-ends they'd found washed up on the beach. The wood was waterlogged and looked like it must weigh a ton. It took six husky Kudeshti to haul it from the sand and launch it. I figured it would sink like a rock, but no—the *Ishkazar* (strange as it seemed) actually floated. Jeholt pointed to this improvised logjam and said: "Beautiful!" and gestured for me to go aboard. My word for it wouldn't have been "beautiful"—it was anything but that—and I hesitated to trust my weight to it, but I remembered what you used to tell me, Dad: "No guts, no glory," and so I decided to chance it. If worse came to worse, I've always been a better-than-average swimmer. The mast was just a sapling with its branches lopped off, and when Jeholt hoisted sail, I saw that the sailcloth was made of bakku bags and flour bags that had been sewn together with some kind of twine. Jeholt took the helm. The helm? There wasn't much of a helm for him to take, really, because the steering was done with an oar that fitted into a slot in the stern. And off we went—away from shore and into deeper water with Jeholt gleeful and me nervous and expecting the *Ishkazar* to sink right beneath my feet at any second. But it didn't. As soon as the *Wind Dancer* caught the breeze, I realized that she'd earned her name. She was a sorceress capable of levitation. She climbed right out of the waves so that only the bottom fourth of the logs were under water, and soon we were gliding ahead at maybe ten knots, and then fifteen, and then even faster. I couldn't believe it. The sensation was like iceboating—skimming along effortlessly at a speed that any America's Cup contender would have envied. Jeholt was smiling at me. He raised his voice to make himself heard over the wind and shouted: "Beautiful!" And this time I agreed. "Lagaspi!" I yelled back. "Beautiful!"

It's a good thing I never mentioned that little adventure to Raskalde. If he knew I'd thumbed my nose at Davy Jones like that, I bet he'd have six different kinds of a conniption. It's kind of nice that Raskalde feels protective toward me, but you can have too much of a good thing, you know. He's right when he says I didn't come to Kudesh to fall off a dakhir and break my neck, but I didn't come to Kudesh to be treated like a Dresden china doll either. I didn't cross interstellar space to be a stay-at-home and play it safe and never take any chances. For the time being, I'll obey his restrictions, but he and I will need to reach an understanding before long.

Daniel and Kurt and I are planning to throw a graduation party for ourselves. When we've passed our tests and made our speeches, we'll be going back to Musambik for a few days. We're due for our regular medical check-ups, so we'd be going anyway even if we were dulugi diverte, but all three of us expect to get good grades or report cards or gold stars . . . Come to think of it, I don't have a *clue* what the Kudeshda equivalent is, but whatever it is, we expect to get it, and if we do, we'll have a legitimate excuse to celebrate while we're there.

As you probably know already, Musambik is where the Terran settle-

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ment—and the spaceport—is located. Everyone who comes to Kudesh lands at Musambik. The hospital's there, too, and that's where we go for our physicals and our inoculations and for treatment if we get sick. But that's not the fun part. No one looks forward to visiting the hospital. But the *hotel* . . . that's a different story. The hotel has a gorgeous swimming pool and a holovision theater and a restaurant where you can get real burritos and real hamburgers and real potato chips—all the junk food we've had to do without—and you can even get imported beer for prices that are only mildly astronomical. It's a little taste of home away from home—a nice place where we can go to get away from everything for a while. Not that I regret my decision to make a new life for myself on Kudesh—I love it here, and I'm excited about what I'll be doing, and I think I've proved that I can function in an alien environment and get along just fine—but I miss home, too, and the hotel at Musambik will let me pretend I never left Earth . . . for a couple of days, anyway.

There's Raskalde—waiting for me about a hundred meters down the road. He said he'd meet me here and walk with me the rest of the way to Makkalapul. *(Chuckles.)* Maybe he's afraid I'll trip over my own feet and break a leg if he's not looking after me. No—that's not fair. He knows I've got a case of the jitters and he's just trying to be supportive. It's good of him to take the trouble.

He and I will be talking in Quetzal, and that'll be bafflegab to you, so I might as well sign off for now.

Wish me luck. I've studied hard and I'm well prepared, but a little luck never hurt, did it?

Prolonged pause.

That's a relief! Wow! I didn't think I was especially worried about taking that test, but I was just kidding myself. Now that it's over, it's as if a heavy weight's been lifted from my shoulders. I feel like dancing in the streets. Or swinging from a tree limb by my knees. Or twirling batons with my toes. If I got a good start, I bet I could run right up the side of a skyscraper or two. If there were any skyscrapers around here for me to run up the side of, that is. Maybe the front of the temple would do. It's about four stories high and made out of stone. That's as close to a skyscraper as anything you'll find in Djeradar.

As you can probably tell, I think I did pretty good on the test. It lasted for a little more than two hours and consisted of me standing in front of a group of three priests and two priestesses, conversing with them and answering questions. My performance wasn't flawless—I had to ask them to repeat several questions, and there was one question that really stumped me and had to be rephrased twice before I got the gist of it. And I stumbled over some of the answers and I used incorrect grammar a couple of times and I probably would have given smoother and shorter replies if I'd known in advance what they were going to ask me. But none of the mistakes I made were serious.

The next big hurdle will be my sermon, and yes—I'm fretful about that, too, but at least it won't be impromptu. I've already composed it and now all I have to do is a little fine-tuning. Even if I do say so myself—and, as a matter of fact, I *do*—it'll be eloquent. Whether or not it'll be both eloquent *and* persuasive . . . that remains to be seen, doesn't it?

(Shouts.) Donald!

Here comes Donald Mackenzie.

(Shouts.) Donald! Yoo-hoo! Over here!

I'm waving to him—but not from side-to-side. *(Giggles.)* Never let it be said that I don't learn from my mistakes.

Wherever he's going, he's in a big rush to get there. He's almost running.

Hey, Donald! Chasing white rabbits, are you? What's the hurry?

DONALD *(breathless)*: I've been looking for you.

NAOMI: Couldn't wait to congratulate me—is that it? You'll be pleased to hear

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that I did okay. I've just proved that I can sling the lingo leryda lathi kirachu.

DONALD: We need to talk.

NAOMI: Aren't you going to congratulate me?

DONALD: No. I'm not. *Definitely* not.

NAOMI: Why not?

DONALD: Because congratulations aren't in order. You'd be better off if you'd failed the test. You'd be better of if you'd never come to Kudesh.

NAOMI: Is that so?

DONALD: Yes. That's so. Listen . . . You remember the argument I had with Raskalde? The disagreement that he and I had over the makiti hunt?

NAOMI: Fiddlesticks! Raskalde's not one to hold a grudge. I'm sure he's forgotten all about it.

DONALD: *He* may have forgotten about it, but I haven't.

NAOMI: You shouldn't be that way, Donald. You should be more forgiving.

DONALD: Forgiving? I'm *very* forgiving. I'm all for giving him a swift kick in the ass. I'm for giving him a wallop alongside the head so hard his *grandchildren* will be born dizzy. The lying, treacherous, sneaking, underhanded, no good lying bastard!

NAOMI: You said "lying" twice.

DONALD: It bears repeating.

NAOMI: I don't believe . . . No. You're just upset. You don't really mean it. You say things you don't really mean when you're upset.

DONALD: You've got it backwards. When people are upset, that's when they say *exactly* what they mean. That's when their inhibitions are down. They aren't trying to be tactful or agreeable. They just spit out the truth. I *am* upset. Yes. You're right about that. So pay close attention. I'm speaking the truth—just as Raskalde was speaking the truth the other day when he got so upset with me.

NAOMI: Yes. He called you "a meddling shir-raz," and—as you say—that *is* the truth. So what? He wasn't telling me anything I didn't already know.

DONALD: Correct. I *am* a meddling shir-raz, and I'm proud of it. He also said that you'd come to Kudesh to make a great personal sacrifice, and . . .

NAOMI: No. He said I'd made a great personal sacrifice to come to Kudesh. He knows how much I miss my family and friends.

DONALD: Future tense. You're still not getting it right. When you hear future tense, you almost always misinterpret it.

NAOMI: Future tense? He was talking about a sacrifice yet to come?

DONALD: He was. Yes. And he added that you wouldn't be able to do your duty if you were already dead when the time came for you to do it. *Already* dead. He distinctly used the word "fedjad." That could be "already" in the sense of "previously," but in this instance, the connotation is "prematurely."

NAOMI: You're starting to scare me.

DONALD: Good. You *should* be scared. By coming here, you've volunteered to be burned at the stake.

NAOMI: *What?* You can't be serious!

DONALD: No? Syd-dath akkit. Remember? When you asked me about it, I agreed that the expression translated as "firing squad," but I wasn't familiar with it and it didn't make any sense to me. I suppose I should have looked into it right away, but no—temple rituals have never been of much interest to me and I didn't investigate the matter until Raskalde make the mistake of mentioning you and a sacrifice in the same breath. *That* got my attention. I started wondering. So I did what I probably should have done years ago. I went to the temple library and delved into the scriptures. *(Heavy sigh.)* No fun at all. Written Quetzal is *so* damn difficult, and those documents are even more obscure than most. But—in the end—I found the information I was seeking. "Syd-dath akkit" *does* mean "firing squad." It's a squad consisting of four consecrated priests who set fire to the

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pyre on which sacrificial victims are burned.

NAOMI: But that . . . That's monstrous! Where can they have gotten the idea that I'd go along with something like that?

DONALD: They got that idea because that's the custom here. And not just here. On Earth, too.

NAOMI: Don't be ridiculous, Donald. Human sacrifice isn't practiced on Earth.

DONALD: No. Not now. But it *was*. It used to be widely practiced. Symbolic sacrifice is *still* a common practice. "This is my body, this is my blood." What did you think that was all about? The communion ceremony is nothing more or less than a ritual sacrifice.

NAOMI: That's different!

DONALD: No. It's not. You're just accustomed to it. You grew up with it. It *seems* different to you. But it isn't. Not really. Not fundamentally. At bottom, the same belief system is . . . It's . . . *(Exasperated huff)* . . . How can I make you see? *(Pause.)* Do me a favor. Try looking at it from my point of view. Just this once. Will you?

NAOMI *(scornful)*: A skeptic's point of view.

DONALD: No. An anthropologist's point of view. Or a sociologist's point of view. The viewpoint of a student of social conventions and modes of conduct. What you're looking for are patterns of behavior that aren't confined to one people or one culture or—in this instance—one planet. Universals. All right?

NAOMI *(dubious)*: All right.

DONALD: The dying god. How many versions of the dying god have been worshiped on Earth? In ancient Babylon, he was Tammuz. In Egypt, he was Osiris. In Asia Minor, he was Attis. In Greece, he was Dionysus. Adonis, too. The cult of Adonis originated in Phoenicia and later spread to Greece. Among the Norse, he was Balder. And so on and so forth. There are hundreds of examples. Maybe thousands. The ones I've named are only the most prominent. Every planting culture on the face of the Earth had some version of the same myth. *No* exceptions. None. And the attributes of the god were pretty much the same everywhere. He died and was resurrected. He was always a second-generation deity—the offspring of an older generation of gods. The circumstances of his birth were miraculous. He was identified with growing things—especially grain and grapes, bread and wine. As the god who had defeated death, he presided over the afterworld and could confer life-after-death on his worshipers. He was associated with a goddess who was either his wife, his lover, his sister, or his mother. *And* the rites celebrating his birth and rebirth were sacrificial rites. Sometimes human beings were sacrificed. Sometimes animals. Sometimes offerings of grain and wine were made. In one or two instances, the god himself was the sacrificial victim.

NAOMI: As in Christianity. That's what you're implying. Isn't it?

DONALD: Implying? No. I'm not *implying* anything. I'm saying it right out. Yes. As in Christianity. Damn straight. On Earth, Jesus is just the most recent version of the dying god. On Kudesh, Djera is another version. And Obidas was yet another version. I say "was"—past tense—because Obidas is no longer worshiped separately. The cult of Djera and the cult of Obidas merged a couple of centuries ago when Hakkod—a disciple of Obidas—made an impassioned appeal to the Djeran priests and convinced them that the two entities—Djera and Obidas—were merely different manifestations of the same deity.

NAOMI: So that's why it's called the "Djera Obidas" temple.

DONALD: That's why. And that's the sort of message they're hoping to hear from you. If—like Hakkod—you can persuade them that your god and their god are essentially the same god, the

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teachings of your religion will be absorbed by their religion and the temple will become the "Djera Obidas Church of Christ." Or something like that. But you haven't got a chance of persuading them unless you're willing to demonstrate that your faith is strong. Do you sincerely believe that your god can bestow life-after-death on you? If you do, they figure you won't mind dying in the service of your god. Hakkod had the courage of his convictions. He proved it by allowing himself to be martyred. They expect the same of you. That's the *price* you must pay to get a respectful hearing from them.

NAOMI: But they can't *make* me do it. Can they? It's voluntary. Right?

DONALD: It's supposed to be. Yes. But . . . Naomi, I just don't know! If you were to go to them and explain that you didn't understand, that you didn't realize what you'd be required to do . . . I have no idea what their reaction would be. My advice is to play it safe. Get the hell out of Dodge. Jeholt will take you. I haven't asked him yet, but I'm sure he will. In the *Ishkazar*.

NAOMI: Jeholt?

DONALD: He and I are soul mates. Or we would be if we had souls. Like me, he has no religious affiliation. Cheating the Djerati of their sacrificial victim wouldn't be sacrilege to him. As a matter of fact, he'd probably think of it as a lark. Besides, he likes you. He'd be more than willing to help you escape.

NAOMI: Escape? But where can I escape to? Where can I go?

DONALD: What difference does it make? Away from here. Anywhere. Downriver. Maybe Jeholt could take you as far as Elnith. *(A finger snap)*. Sure! That's it. Head for Elnith. It's a port city. From there you can book passage on a ship bound for Musambik.

NAOMI *(hesitant)*: I'm not sure . . .

DONALD: Come on! Taikin yorsalov. We need to get moving. Turn that damn thing off, and . . .

NAOMI: What thing? . . . Oh! My voorder! I'd forgotten about it. I didn't realize it was still recording.

Click.

Prolonged pause.

You weren't supposed to overhear that, but you did, and I guess it's just as well. If I'd known what Donald was going to say, I wouldn't have made a recording of him saying it, and when I realized that I *had* made a recording of it, my first impulse was to erase it, but I don't need to tell you that I changed my mind. Let it be. It'll save me the trouble of trying to explain what's happening. I apologize for the *way* Donald expresses himself—the man's as irreverent as they come, isn't he?—but he means well, his concern for my welfare is genuine, and his summary of the dilemma I'm facing is more or less accurate. That's the way it is. Deleting Donald's remarks and substituting my own won't change the way it is. So okay. Let it stand.

I wish I could say that I'm aboard the *Ishkazar* and on my way to safety. But no—I'm not. As you could probably tell from listening to my conversation with Donald, I didn't much relish the idea of running away. I was *tempted* by it—I don't deny that—but my last name is "Pollard" and the Pollards don't head for the hills at the first sign of trouble. Do they? No. That isn't the way I was brought up. My parents taught me better than that. There was a Pollard at the Alamo. And when the dome over the first lunar colony was hit by a meteor, there was a Pollard—Millicent Pollard—who stayed behind while the other women and the children were evacuated. And the captain of the *Hestia* who blew up his own ship to keep it from being captured by the Taldja rebels of Ganymede—he, too, was a Pollard. (And you thought I wasn't listening, didn't you, Dad? But I *was*. All the tall tales you used to tell us about our family history—I heard every word.) Well, I'm a Pollard, too. And Pollards don't run away from trouble. We're crazier than spin bugs—the whole kit and caboodle of us—but

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we don't run away.

And so I thanked Donald for his timely warning, I politely but firmly refused to take his advice, and I went to see Raskalde. He confirmed what Donald had told me—or most of it anyway. Donald was wrong when he accused Raskalde of lying to me. Raskalde had done no such thing. And he hadn't tried to deceive me by *withholding* information from me either. It's like this . . . Choosing to "zormaat cha syd-dath akkit"—submit to the firing squad—is considered a very personal and private decision. For Raskalde to broach the subject with me would have been very impolite. But as soon as I indicated my willingness to discuss it, Raskalde wasn't the least bit reluctant to oblige.

The ceremony where I'm scheduled to speak is the second most important ritual of the year for Djerati. It's the celebration of the birth of their god—kind of like Christmas except that it takes place during the autumnal equinox on Kudesh instead of at the winter solstice as it does on Earth. The *most* important ritual of the year is the re-birth of their god, and that takes place during the spring equinox on Kudesh just as Easter does on Earth. And yes—both ceremonies culminate in the burning of sacrificial victims, and—in both instances—the sacrificial victim is the person who has been granted permission to address the congregation. It is considered a rare privilege and a very great honor.

Raskalde was deeply distressed when I made it clear to him that I hadn't understood. He made no attempt at all to compel me. Donald needn't have worried about that. Raskalde's only misgiving was that—with only a day and a half to go—he wouldn't have much time to prepare a sermon.

That's right. You've guessed it. Raskalde's my sponsor, my mentor, my teacher, my . . . the Kudeshka word for it is "shinkutar." Raskalde's my shinkutar, and—as such—I'm his responsibility. He's responsible for what I do. *And* for what I *don't* do. If I'm a no-show at Djera's birthday bash, Raskalde gets to take my place.

He's certainly willing. As I say, Djerati regard it as a glorious way to go. But it wouldn't be the same. Ordinarily, people who volunteer to do this have a revelation to announce, or a reform to propose, or a cause to champion, or a radical new interpretation of the scriptures—some sort of special message that they consider vitally important. This is their way of guaranteeing that their audience will *listen*.

Someday Raskalde hopes he'll have something to say that'll be worth making the ultimate sacrifice. It would be the culmination of his career and a validation of his faith. But he doesn't—not yet. If he were to go to the flames now, it wouldn't be because he'd triumphed. It would be because I'd failed.

I can't let him down like that.

I can't let *myself* down like that.

Most importantly, I can't let my God down like that.

I *do* have something to say that's worth sacrificing myself. My whole reason for coming to Kudesh was to say it. And I *have* been granted a revelation that I feel obligated to proclaim. No angels have appeared on high—not to me anyway. At least not that I've noticed. And I haven't been talking to any burning bushes either. No—this particular insight was imparted to me by the most unsaintly messenger you can imagine. Donald Mackenzie. How about that? The irony is almost too good to be true. My Big Idea was suggested to me by the most skeptical skeptic I've ever met. Isn't that a hoot? *(Chuckles)*. The Lord moves in mysterious ways.

Donald was expounding on how widespread the myth of the dying god used to be. Egypt, Babylon, Greece . . . well, you heard him. Every culture everywhere on Earth was telling and retelling the same basic story. And—when you stop to think about it—is that really

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so strange? All societies have their storytellers, and telling stories is what storytellers *do*. A good yarn gets repeated around campfires and in marketplaces and along caravan routes and sea lanes and so on and so forth. It gets a lot of circulation. How the tale of the dying god crossed from one culture to another . . . you don't have to be a genius to see how that could have happened.

But from one *planet* to another?

Kurt says that the way we do math and the way the Kudeshti do math is pretty much the same. The symbols are different, and the Kudeshti are hampered by lack of a zero, but one plus one still makes two whether you're on Earth or Kudesh or anywhere else.

What's valid on Earth is also valid on Kudesh.

And if that's true of mathematics, wouldn't it be equally true of religion?

Is it a coincidence that the Kudeshti, too, have a resurrected god?

Of course not. Even Donald doesn't think that. His explanation is that agricultural societies—farmers who rely on their crops for food and on the return of spring to plant their crops—tend to have the same concerns, the same psychology, the same solutions to the same problems, and—in general—similar reasons for developing along similar lines.

I have another explanation.

I think Djera is the Kudeshda Jesus.

I also think that this concept of assimilation has a lot of merit. That, I've decided, is the right thing to do. The cult of Djera and the cult of Obidas could have become embroiled in a holy war. But they didn't. They opted to combine forces. No strife. No carnage. No bitterness. The two beliefs became a blend of both—maybe not painlessly but at least peacefully.

I can profit from that example.

I had intended to deliver a sermon stressing the differences between our religion and theirs. Now I won't. The text of that sermon has been scrapped. I'm going to let Hakkod be my guide. I'm going to concentrate on what we have in common with the Djerati and urge them to join with us in fellowship.

Donald asked the right question, didn't he? How strong *is* my faith? Do I truly believe that God is my salvation? If I do, the prospect of going to Him won't daunt me. And if I don't? If I shrink from this ordeal? Then I'm a hypocrite. What's more, I'll have been openly revealed as a hypocrite. The first missionary to come here will be the last. Or—if other missionaries follow me—they'll have been totally discredited by my cowardice. The Kudeshti will be predisposed to reject Christianity as a tissue of lies. All because of me.

I can't allow that to happen.

No guts, no glory. Right, Dad?

I didn't know what awaited me when I arrived on Kudesh. But God knew. And this is where He sent me. I have to place my trust in Him.

Sound of doors opening. Approaching footsteps.

They're coming for me now. The ceremony's about to begin. Goodbye. I love you all. Don't be sad for me. Pray for me. I'll try to be brave. I'll try to make you proud of me.

Prolonged pause.

This is Donald Mackenzie. I promised Naomi to take care of this—to see that this vocording was transmitted to you. Here it is. I've kept my word.

I wasn't permitted to attend the ritual, but I spoke with Raskalde after it was over. He said: "She spoke well. She died well. She has given us much to consider."

I thought you'd like to know.

I have to be honest with you. I don't share your religious convictions. But if a display of sheer courage could have made a believer out of me, Naomi would have done it.

Be proud of her. ■

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Artemis Fowl, Eoin Colfer, Hyperion Press, $7.99 (at Amazon), 304 pp. (ISBN: 0786817070).

Storyteller, Amy Thomson, Ace, $14, 372 pp. (ISBN: 0-441-01094-6).

Time's Eye, Arthur C. Clarke and Stephen Baxter, Ballantine/Del Rey, $26.95, 353 pp. (ISBN: 0-345-45248-8).

Reading the Bones, Sheila Finch, Tachyon, $14.95, 197 pp. (ISBN: 1-892391-08-2).

Star Dragon, Mike Brotherton, TOR, $24.95, 352 pp. (ISBN: 0-765-30758-8).

The Knight, Gene Wolfe, TOR, $25.95, 430 pp. (ISBN: 0-765-30989-0).

Prometheus: The Autobiography, Uncle River, Crossquarter Publishing Group, $13.50, 165 pp. (ISBN: 1-890109-77-0).

As I sit down to start work on this column in mid-October 2003, I have just returned from my honeymoon in Paris, where milady Kate and I enjoyed museums and food and wine to exhaustion. On our last day she said she wanted to try Moroccan food, and hadn't we seen a Moroccan restaurant somewhere around the hotel? So we walked a couple of blocks and found La Menara. The door was open and the menu was on display, so we went in. Beautiful decor, a setup for live music and "danseuses Orientales," a friendly cat wandering around, and in due time the chef—Aziz Atif—appeared to say he wasn't really open till eight, but that was okay, he would feed us.

And so he did—couscous and lamb and a nice Moroccan wine—while explaining that he had opened the restaurant only two weeks before. And we had the restaurant to ourselves, which, given the difficulty of finding smoke-free zones in Paris, was a delight. I hope he stays in business long enough for this plug to do some good. If you're in Paris, look up La Menara, 8 Boulevard de la Madeleine, telephone 01-53-05-96-96.

On another note, you can glimpse a wedding picture at www2.thomas.edu/faculty/easton/.

On still *another* note, I finished all the books I had brought with me to read (for review) before the seven-hour flight home. So we found the W. H. Smith bookstore near the Seine and browsed for a while. I thought **Artemis Fowl** looked interesting—it came out a couple of years ago, and it's a kid's book, but what the heck. I bought it.

And I enjoyed it. The title character is the twelve-year-old scion of a family that has been in the crime business for generations. He's a genius, too, so given to Great Ideas and Ingenious Inventions that he could easily be called the Tom Swift of the underworld. But he isn't shackled by the ordinary mundanities. He has concluded that fairies are real, and he has hatched a plot to capture one in order to get his hands on a few pots of gold. All goes well, until it turns out that fairies are pretty technological

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creatures, they have a police force (you didn't know that leprechaun was a corruption of LEPrecon, "an elite branch of the Lower Elements Police"?), and they play rough when suitably provoked. But little Artie has a bodyguard almost as tough as a troll and a heart just big enough to save him in the crunch, while author Eoin Colfer has a very jaunty style.

The book was apparently very popular when it was new, and there have been sequels, with the third in the series, *The Eternity Code*, due out in paperback from Hyperion (ISBN: 0786814934) in May 2004 (the hardbound can already be had from Miramax). Judging from the book in hand, all three should appeal to fans of Harry Potter.

It's a fair bet that you will love Amy Thomson's **Storyteller**, which can remind you of several favorite works (I think of some by Andre Norton and Ursula Le Guin, among others) while remaining quite distinctively itself.

Here's the gist: Samad is an orphan who has run away from an unhappy fosterage. He is now a street urchin, surviving on garbage and handouts, when Teller, one of his world's famed storytellers—who, if one listens to a tale all the way through, must be paid with a donation—appears before him. Samad is penniless, unable to pay; yet the story draws him in. It is the tale of the discovery of his world by a Pilot whose Jump Talent died on arrival. Jump is an addictive experience, the talent always burns out sooner or later, and very few Pilots long survive the loss. Marooned and bereft, feeling stripped of all that makes life worthwhile, the Pilot tried to crash her ship, but a safety override ensured a safe splashdown. That was when a harsel—a whale-like creature with a hollow back—spoke to her mentally. Soon she and the harsel had a relationship, her shuttle was fitted neatly into the harsel's dorsal cavity, and she was no longer suicidal.

And Samad has a debt. So he steals a loaf of bread, gets caught, gets rescued by the storyteller, and is "punished" for his behavior by being forced to be her guide. Teller tries to find him a better foster home, but by then he is stuck to her like a barnacle on a harsel's belly. She tries to leave, he follows, and when she goes to the port, he discovers she has a harsel of her own, Abeha—who conspires with Samad to stow him away. Before long, he is Teller's apprentice in storytelling, among other things.

As Samad grows up, Thomson gradually reveals who Teller really is and what an important role she plays in her world. We learn something of the harsels, their life cycle, and the important life stage Abeha has put off for far too long. We learn something of dependence and loss and resolution. We share love and grief and at the end a grand relief.

Thomson's hand is sure, her pacing flawless, and her writing as rich with heart as anything you will ever read. She deserves to be one of our more popular writers.

Separately, both Arthur C. Clarke and Stephen Baxter have come up with some wowsers. Together . . . Well, there was *The Light of Other Days* (reviewed here in September 2000), which gave us a way to see through time. Now here's **Time's Eye**, which lets time—or something!—see through us.

It takes awhile for the gimmick to become clear. An australopithecine wakes up in the morning to find a silvery ball floating in the air and a couple of red-coated creatures after her kid. British troops on the Indian frontier—accompanied by a journalist named Ruddy—spot another silvery ball, and a strange ape-like creature. A UN helicopter takes a hit from an Afghan kid's grenade launcher and crashes—to face those same British troops. A Soyuz ferry ship leaves the Space Station—only to have the Station vanish, the airwaves go dead,

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and the Earth below turn into a weird patchwork quilt. But these fellows have the big picture, and in a bit they figure it out: Somehow, the Earth's surface has been scrambled, with pieces replaced by their equivalents from different eras. Glaciers melt in the middle of the desert. Forests wither in the cold. Volcanoes erupt as the crust struggles to reequilibrate. And everywhere those silvery balls watch people struggle to cope.

Presumably the rest of today's six billion are scattered throughout time. All we see is the chosen few, who soon hook up with two great armies. The Brits and UN crew get together with Alexander the Great. The Soyuz crew runs into Genghiz Khan. And before long the Mother of All Battles is upon us, with a world at stake. Perhaps predictably, the silvery balls gather to watch, while the greatest ball of all lurks in the Temple of Marduk in Babylon and Bisesa, a UN observer who has left a child behind in London, grows more and more determined to smash through this ball to find an answer.

Clarke and Baxter don't really oblige her, though they do hint heavily that the world wasn't scrambled by accident. There is purpose behind it all, and you really can't go home again.

This is only Book One. Presumably the rest of the series will cast more light upon the mystery. For now we must be content with a thoroughly entertaining adventure. Alexander versus Genghiz, sheesh!

Sheila Finch is a gifted writer whose fascinating Xenolinguist stories delve into the perils of cross-cultural communication. As a novella, **Reading the Bones** won a Nebula. Now it's a novel, and not one to put down easily.

The world is Krishna, which the native Frehti call Not-Here. The linguist is Ries Danyo, a drug-sodden wreck fallen so low that all he can now do is accompany the Deputy Commissioner's snotty wife to the market to translate her shopping lists. But then the natives go berserk. As the human colony is slaughtered, Danyo flees with the Deputy Commissioner's wife and daughters, Lita and Jilan, three years old and not yet talking. They are getting into the aircar when a single Freh appears, warning of danger, handing Danyo a carved "soul bone" and saying "Give to the Mothers [who dwell] beneath the bones." Then the killers appear. Mama dies, and Danyo gets the kids safely into the air—but not for long. The aircar crashes, and they must struggle through the forest until they are captured by the Mothers.

Unfortunately, Danyo has broken the soul bone. The Mothers are distraught, for they are struggling to write their language down, using symbols provided by Freh who sacrifice a finger to provide a bone they can carve with a candidate symbol. But Danyo has the skills to help, he soon learns that only one last symbol is needed, and Jilan, of all people, provides it. Then the Mothers guide them to the starbase.

Why do the Freh call their world "Not-Here"? Many years later, Lita is a new young linguist, but she is not quite up to snuff. She is sent back to Krishna, where the Mothers have a human leader and the alien Venatixi scent a mystery of language and origins. Yet she must first deal with her own mystery of kinship and absent love and bitter jealousy.

A fine piece of work, and a pleasure to read.

Mike Brotherton's first novel, **Star Dragon**, promises an interesting career. The future is one where people can change their forms at whim. Bioengineering makes it possible to have earwings, or to be a giant, or to glow green. Spaceships are half-alive. And ancient space probes are sending reports from far-distant stars, such as SS Cygni, where in the roiling plasmas of a vast accretion disk swim—if the images relayed by primitive electronics can be believed—

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something that looks for all the world like a dragon!

So the great corporation Biolathe recruits Sam Fisher, exobiologist, genius, and supreme egotist, to join an expedition to investigate the star dragons and even capture one, all so that the secrets of how it lives in such an extreme environment can be captured for corporate glory and profit. The captain of the good ship *Karamojo* is Lena Fang, who in an age of potent artificial intelligences and near immortality, desperately craves captainly achievement and fame. Biosystems is Henderson, who has dreams of conquering the universe with his seed. The ship's joat is Stearn, who thinks everything is a game and may be the sanest person aboard. Devereaux handles physical systems, and when Stearn makes his move, the two make a lovely pair. The ship's AI thinks it is Hemingway and goes by the name of Papa.

For a while, the *Karamojo* looks a bit like a love boat. But as the goal approaches, it becomes not a ship of fools, but surely a boatload of obsessives. Devereaux's studies of the view ahead detect many dragons, Fang declares the solution is to use the ship's missiles to drive the dragons into a magnetic net, and Fisher cries "No! No! I should have final say, not that militaristic bitch!" (Would you believe they were lovers for a bit?)

And so disaster. They struggle back from near failure. Fisher grows up a bit. Fang loosens. They discover grand mysteries, grander promises, and a future much, much deeper than the mere five centuries they are gone from Earth.

Brotherton has a nice touch with everything. The characters are convincing, and the scope and sweep are enough to feed anyone's craving for sensawunda. And if plot is little more than a Hemingwayish big game hunt . . . well, it worked for Hemingway.

Enjoy!

Gene Wolfe produces new work far too infrequently, for he works slowly, getting every word and nuance so right that it is almost impossible for any but the most carping of critics to say a negative word. For the reader, the result is an experience of flawless flow. Open the book, and get carried away as a boy says, "Remember the day we drove out to the cabin? Then Geri phoned. You had to go home and did not need a kid around. So we said there was no reason for me to go too, I could stay out there and you would come back the next day. . . . so I went on a hike. Maybe it was a mistake. I went a long way, but I was not lost. . . . I saw a tree that was different from all the others. . . . It was a spiny orange tree. . . . I found a branch that was almost straight. I cut off that and trimmed it and so forth. That may have been the main thing, my main mistake. They are not like other trees. The Mossmen care more about them. . . . After a while I lay down and looked at the clouds [and saw] a flying castle, all spiky like a star because there were towers and turrets coming out of all its sides. . . . Night came. . . . I started back, walking fast. . . . Someone grabbed me in the dark. . . . 'Welcome to Aelfrice!'"

Yup. The child hero of **The Knight**, Book One of "The Wizard Knight," stumbles into faery, where before long he has a magical bowstring, an adult's form married to the child's innocence, a queen (Disiri of the Moss Aelf) for a true love, a name (Able of the High Heart), and a sense that he is a knight—though he has a lot to learn about just what that entails. Is it just honor? Or is noble birth essential? That is forever out of reach. Must he have armor and charger and helm? Well, that he can obtain if he but reaches the castle and enlists. A sword? He has already sworn that only the legendary sword of heroes, Eterne, will do. Honor? He deals fairly if sometimes firmly with all who cross his path, whether humans of Mythgarthr, or Mossmen, Fire elves, and primal forces. Only the giants exist as a force of evil to be slain on

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sight.

His allies soon include a dog of mythic potency, a one-eyed sailor, a human cripple, an ogre, and a pair of Aelf-maids (who would dearly love to have their way with him, though he is sworn to another). His adventures take him to sea, where he fights off cannibal raiders and gets diverted for a time to the bottom of the sea and then to a mountaintop, where he is asked to commit himself to doing battle against Kulili, creator of the Aelf. In due time, he gets to the castle of the local lord, takes a few lumps, and hies off to defend a bridge in the wilderness but gets sidetracked into an expedition to Jotunland.

Nor are his adventures yet over. He has many tasks ahead, and many more worlds to explore, perhaps beginning with Skai, whose castles are sometimes visible among the clouds. Will he ever be reunited with Disiri? Will he succumb to the wiles of others? Will he find Eterne? Will he return to Earth, or will only his report to his brother, which this is, make the crossing? Some questions are answered in this first book of the series. Others must wait, and I can make no promises that all the mysteries alluded to will be resolved.

But I can promise that you will love this book and its sequels. Wolfe is a writer without peer, and this book is proof as good as anything he has ever written that he deserves his two Nebula Awards, two World Fantasy Awards, one John W. Campbell Memorial Award, one British Fantasy Award, one Prix Apollo, and the World Fantasy Award for Life Achievement.

You have seen Uncle River's stories in these pages. Now consider **Prometheus: The Autobiography**, which is billed as an SF novel, but is really. . . .

Well, it's hard to say just what it is. It has its fictive elements, but it's also something of a rant, a philosophical tract, a prophecy, a . . . Call it Uncle River on a roll, and no jokes about cannibalism, please.

Which is where he starts. Prometheus goes back, way back. He's the ur-shaman, the insight-bringer, who first organized the Cosmos for human perception. Then came the Goddess, who wrapped ritual around farming and rearranged the Cosmos a bit. Then came Zeus, the thoroughly insane paranoid megalomaniac (with many aliases) who ducked that bit about sacrificing the king to fertilize the fields, married the Goddess, and rearranged the Cosmos to make his own Power the main thing that mattered. He even retold the ancient tales, like that one about Prometheus fetching fire from the volcano, so he can pin the boy down to the mountain and feast on his liver for a thousand years.

Our boy has been off the hook for the last few millennia, though. Zeus decided he could afford to keep the insight-bringer around the palace, especially since Prometheus isn't much into power. Whatever works is the thing: "I just carried fire, to enhance, and simultaneously to represent Life, as in its Time the Goddess's grain would sustain and represent Life. I just carried fire back to camp . . . and learned to notice a thing or two along the way."

Now, he says, the Zeusian power trip is getting old and in its pursuit we've pretty well trashed the joint. As well as distorted our thinking in a fair number of ways. We need an alternative, and getting there won't be easy: "I do not think you will escape horrendous destruction. I do not think you will escape the horrors of mobs of the possessed blaring and beating on each other and on whoever has the misfortune accidentally to stand in their way." If we can descend into the approaching abyss and somehow climb out again, things cannot be the same. The Goddess's path won't do, nor will Zeus's. And while Prometheus cannot prescribe—only see and describe—he suspects that the new organizing principle for the Cosmos is something we might call "Relationship,

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perhaps. Relationship to each other. Relationship to your own souls . . . Relationship to that which exists. . . ."

A biologist like myself can see in his words a call for ecological awareness. A mystic might call it something else. Either way, Uncle River, SF's own professional hermit, possessor of the world's sole Doctorate in Psychology of the Unconscious, is worth attending. ■

Chat online
with your favorite authors!

Meet Our Nebula Nominees **April 13 @ 9:00 P.M. EST**
Our nominees include Eleanor Arnason, Kage Baker, John Kessel, and Ian R. MacLeod. Check our website for the names of the rest of our Nebula-award finalists! They will participate in this chat just days before the award ceremony.

Tracy and **Laura Hickman** **April 27 @ 9:00 P.M. EST**
Chat about *Mystic Warrior,* Book One of The Bronz Canticles.

Ecology in Science Fiction **May 11 @ 9:00 P.M. EST**
Join Kim Stanley Robinson (*Antarctica, Green Mars*) and Karen Traviss (*City of Pearl*) to chat about eco-SF.

Go to **www.scifi.com/chat** or link to the chats via our home page (**www.analogsf.com**). Chats are held in conjunction with *Asimov's* and the Sci-fi Channel and are moderated by *Asimov's* editor, Gardner Dozois.

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BRASS TACKS

Dear Stan:

I'm shocked that someone of Jeffery Kooistra's intelligence can make such a fundamental error in logic ("Isaac Was Wrong [Maybe]," November 2003 issue).

In trying to equate UFOlogists' claims with the SETI researchers' use of the Drake equation, Kooistra states that the UFOlogists take the total number of UFO sightings, subtract the number that are explained as natural or man-made phenomena, and thereby arrive at a number of sightings "that seem explicable *only by extraterrestrial visitation*" (italics added).

See the flaw? To jump from unexplained sightings to extraterrestrial visitors is, as Mr. Spock would say, not logical. Just because a sighting is unexplained does not mean it is evidence of extraterrestrial visitation, any more than it means that the unexplained sighting is a Hollywood publicity stunt. Being unexplained is not—repeat, not—evidence of alien tourism.

Thinking about the differences between SETI researchers and UFO believers, Michael Shermer, founding publisher of *Skeptic* magazine, put it this way in the December 2001 issue of *Scientific American*:

> A clear distinction can be made between SETI scientists and UFOlogists. SETI scientists begin with the null hypothesis that ETIs (extraterrestrial intelligences) do not exist and that they must provide concrete evidence before making the extraordinary claim that we are not alone in the universe. UFOlogists begin with the positive hypothesis that ETIs exist and have visited us, then employ questionable research techniques to support that belief, such as hypnotic regression (revelations of abduction experiences), anecdotal reasoning (countless stories of UFO sightings), conspiratorial thinking (governmental cover-ups of alien encounters), low-quality evidence (blurry photographs and grainy videos), and anomalistic thinking (atmosphere anomalies and visual misperceptions by eyewitnesses).

Isaac Asimov himself once said that he had no argument with reports of UFOs. "It's the *IFOs* that bother me," he added. Yes, there are unidentified objects seen in the sky. But the conclusion that these unidentified objects are extraterrestrial visitors is unsupported by any solid evidence, even after more than half a century.

To use the Drake equation to prove anything is numerology. To use UFO sightings to prove that we've been visited by extraterrestrials is nonsense.

Ben Bova

Dear Sirs:

Mr. Kooistra's usual high standard of writing was not evident in his latest column ("Asimov was Wrong [Maybe]," November 2003, "The Alternate View"). He claims one should start with the number of observed UFOs, remove all those that are hoaxes, etc., until arriving at those "which seem explicable only by extraterrestrial visitation." But the sole "evidence" that these cases are explica-

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ble "only by extraterrestrial visitation" is that one cannot think of some other ordinary explanation. This is a classic case of the "Argument from Ignorance" (argumentum ad ignorantiam): I cannot prove that a UFO was *not* an alien spacecraft; therefore it *was* an alien spacecraft. Using this "logic," one can "prove" anything: some UFOs are inexplicable by ordinary means; I cannot prove they were not angels; therefore, they were angels.

Furthermore, Mr. Kooistra's "evidence" includes the infamous "Roswell incident." This "incident" was conclusively debunked so many times (see, for instance, the recent *Skeptic* issue, vol. 10, no. 1), I wonder what kind of research Mr. Kooistra had done before he wrote his column. To summarize: on June 24th, 1947, Kenneth Arnold saw what he considered alien spaceships when flying over Oregon. The press reported this sensationally, launching a "flying saucer" craze. Two weeks later (July 8th, 1947), Major Jesse Marcel investigated "mysterious" wreckage found in Roswell, and jumped to the conclusion that it is the remains of a "flying saucer." He issued a press release to that effect, and the rest is history.

In reality, the wreckage was that of a Mogul project balloon payload—top-secret scientific instruments that attempted to find secret Soviet atomic blasts by their infrared signature. This—*not* any "flying saucer"—was covered up by the official statement that said it was a weather balloon. There was no "flying saucer" found; in fact, there never *were* any "flying saucers": Arnold described U-shaped objects that *moved* "like a saucer skipping over water." The press dubbed them "flying saucers"—and all of a sudden people started seeing saucer *shaped* "spaceships" all over the place. Had the aliens changed their crafts' designs in the two weeks between Arnold's sighting and Marcel's press release?

Why had Maj. Marcel issued such a childish press release? No doubt, he fell victim to the same logical fallacy Mr. Kooistra did: he found strange-looking wreckage (not surprising, considering the fact it was the payload of a top-secret scientific instrument); he probably figured that, since it cannot be the wreckage of any type of plane or aircraft *he* could imagine, it *must* be one of those "flying saucers." It was, after all, "only explicable by extraterrestrial visitation."

Avital Pilpel
New York, NY

Dear *Analog*,

A quick point: as defense of the argument that the government might be covering up UFO evidence, Jeff Kooistra presents the argument that the government *was* partly covering up details of the Roswell crash (specifically, that the balloon's payload was top-secret hardware).

I submit that you also have to ask whether the UFO rumor itself was part of this cover-up. Calling it a weather balloon satisfies most folks. Deliberately leaking a flying-saucer claim would almost perfectly obscure the remaining trail—those who believe it would cease looking for information about what the government had actually launched, and those who don't will generally reject it so forcefully that they'll stop looking for *any* explanation other than the obvious one. The best way to lie is often to tell part of the truth in a way that nobody can accept.

Do I believe that their flying-saucer story *was* part of the cover-up? No; not really. My real point here is that once you invoke a conspiracy, there is very little limit to what you can make believable (or unbelievable). For example: Maybe Kooistra himself is working for the government and was assigned to help bury the truth of Roswell deeper by repeating the Project Mogul story . . .

Joe Kesselman

* * *

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Stan:

I couldn't help but note the irony of having Richard Lovett's fact article "Moving Beyond Life as We Know It: Astrobiology Takes on Earthist-Centricity" in the same issue as Larry Niven and Brenda Cooper's "The Trellis." Inasmuch as the major part of Richard's article deals with the limitations of life in energy-poor environments, and Larry and Brenda's story is set on *Pluto* of all places, I sort of felt it might have been a good idea if Larry and Brenda could have read the article before writing the setting to their story (good story though). It would have worked better if the energetics were more realistic. Even while I was reading "Trellis," before I read the article, I felt that the energetics made the story background a little too unrealistic for a modern *science*-fiction story.

Also, regarding Richard's article: in a footnote he mentions the possibility of more active types of life in environments that are more energy-rich. Unfortunately, I can't remember the names of stories I read 45 (or so) years ago, but I distinctly recall having read one, set on Venus (before we learned what Venus' surface is really like), where the surface was covered with life forms that were just such hyper-active types: continual hunting and feeding of one on another. Even "plants" got into the act, as I recall. There was one life form, called a "doughball," that was a non-differentiated multicellular organism that looked like a ball of dough, and rolled through the Venusian forest consuming all that it touched and growing until it was large enough, and then it would fission. It was unkillable: a bullet just passed through it, and an explosion would just scatter it and create a bunch of small doughballs, which would each then immediately roll off in different directions, consuming and growing. They could only be killed by fire or running out of food (they had no senses except to recognize if any part of one was touching food—then it would roll in that direction. If one rolled into an open area, it would stop and starve to death). A dangerous but interesting creature, if primitive. Maybe some other old-timer will recognize it and be able to tell us the name of the story—I wouldn't mind reading it again.

Howard Mark

Dear *Analog*,

I just read the story by Pete D. Manison, "Who Names the Light?" and thought it was one of the best stories I had ever read. I looked up the author to read some of his other works, but could find nothing!

If this is his first, I hope you will continue to included anything he writes in the future. This was a wonderful, moving story.

Kathy Burt

Glad you liked it, and it's by no means the first. A quick check of the "Story Index" on our website (www.analogsf.com) turned up 11 other stories, plus a Biolog of the author by Jay Kay Klein.

Dear Stan,

You're on target with the November commentary. I was especially struck by the reaction of some of the talk show hosts who make liberty their watchword, but who wanted everyone to boycott the Dixie Chicks. Makes me wonder how anybody takes any of them seriously. But then we live in a time when half the voters think astrology works.

Jack McDevitt

Dear Stan,

As a resident of the Left Coast, I was happy to see your choice of editorial topic this month (November 2003) was freedom of speech. I have noticed a couple of related phenomena that I believe illustrate how the definition of a term (in this case, free speech) can become corrupted to the point it ceases to have a

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practical definition that people can apply to situations they may encounter in real life.

If a person introduces evidence into a debate that demolishes the statements made by the opposition, is that person squashing the freedom of speech of his opponent? Amazingly, I have often encountered people who would agree with that statement—and inevitably these people are not accustomed to logically defending their political beliefs.

The San Francisco Bay Area, where I reside, is politically lopsided, with Democrats and other flavors of (for lack of a better term) "liberals" solidly outnumbering the right side of the spectrum. This is one of the few places in America where you can call someone a socialist and it will be taken as a compliment. Interestingly, this political homogeneity can produce a state where individuals can voice strong political opinions and rarely encounter someone willing to contradict them. When unexpectedly confronted with counter-arguments they are not prepared to refute, the reaction is typically, "Stop trying to stifle my freedom of speech!"

For example, the Bay Area and Silicon Valley are hurting from the recession, particularly in terms of jobs. It's common to hear people expressing the belief that President Bush's economic policies have worsened (or even caused) the recession. I am well prepared with facts and reasoning to refute this belief, and when the opportunity presents itself, I offer my own counter-arguments intended to show the fallacies lying behind this particular belief. So far, no person has made even a paltry attempt at rebuttal. Without exception, the reaction is: "You are attempting to thwart my freedom to speak my mind. This is my First Amendment right, and I refuse to listen to some right-wing extremist try to silence me."

Alas, it is no use trying to explain that inviting open discussion of issues is the opposite of stifling free speech. The same holds true for the other hot buttons of our time: Opposition to the war in Iraq, immigration issues, the Patriot Act, and so on. I have spoken with university-educated people who claim that the fact that the U.S. invaded Iraq even after multitudes of protesters marched on every major city proves that there is no "free speech" in America today.

To extend the ideas you developed in your editorial, Stan, the real danger to free speech is not so much ordinary people telling each other to "shut up," but the gradual and (I believe) deliberate attempt to obfuscate the term to the point where it means anything that anyone says it does. The Founders were concerned about government making laws preventing citizens from spreading ideas the government deems improper. Individuals are (and should be) not only free to tell someone else to shut up, but to expel them from private property and decline to do business with them for ideological reasons. It goes to free speech.

The good news is freedom of speech is alive and well if I can stand in front of the White House and speak (or hand out material) critical of my government. And I can! And I really don't mind if someone walks up to me and says, "Shut up." That's their First Amendment right.

Many thanks for 27 years of enjoyable issues of *Analog*.

Glenn Damato
Redwood City, CA

Dear *Analog*,

When I get my copy of *Analog*, the first thing I do is read the editorial, as I truly enjoy them. The November editorial, however, has me seething. Freedom of speech is something that we cherish deeply. The right to free speech implies that the government will not take action against one who speaks out; however, it says nothing about me not having a right to take action against that person. That is also my right. If a famous person/entity uses their fame to express a point of view that I find particularly offensive I

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reserve the right to take action. I do not buy from Toshiba because of their treacherous sale of CNC equipment to the U.S.S.R. (yes, it was a long time ago). I do not subscribe to *Scientific American* because of their deliberate mixing of politics with science. I do not buy products of France because of the immoral (my opinion) stand of its freely elected representatives. I will avoid movies that support actors who have endangered our troops by encouraging our enemies. No, I don't react to every affront. Only the ones that really offend.

Tolerance is not a virtue if it is indiscriminate. There is a tendency of the left wing today to extend to individuals the constraints that have been imposed upon the government. This is wrong to the extent it takes away my freedom of action. Boycotting France is not different from the boycott of South Africa, which lead to the fall of Apartheid.

Greg Ostrom

Of course you have a right to make your own statements—but I have the feeling you still need to give a bit more consideration to the difference between that and trying to stop other people from making theirs. I humbly suggest a careful *rereading of what I actually wrote as a first step.*

Dear Stan,

I've just finished reading your editorial for the November 2003 *Analog*, and I loved it. Nothing is closer to the truth than those words you wrote for that article.

I've put some time in the military myself and still have friends in Kosovo on the peacekeeping mission there. What they and the soldiers in Iraq are fighting for is what we take for granted here. We send our people and supplies to these countries to ensure that they also have the chance to speak their minds *against* their government and fellow countrymen without persecution. That mission is a *good* mission. Our Constitution and Bill of Rights were written on the belief that we as the colonies had the right to protest, and the freedom to do so without being condemned. Your opening line from OWH Jr. is the point many, many people miss. "We don't like what we hear so you have no right to say it." This is *not* what the Constitution was written for. We have freedom, but freedom is double edged once you have it. With freedom, you, of course, willingly take the pleasant side and conditions. But you must also acknowledge your fellow man's freedom to disagree with you. And no one has the right to take that away from anyone.

You have the freedom to be right.
You have the freedom to be wrong.
You have the freedom to succeed.
You have the freedom to fail.

This is every man, woman and child's base freedom in this country, and what we're trying to give to the people of Iraq.

Patrick Williamson
Altoona, PA ■

An original writer is not one who imitates nobody, but one whom nobody can imitate.

—Chateaubriand

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Steve Miller & Sharon Lee,
Sam Lewis, Dave Arneson,
Erin Lindsay, and others:
http://www.trinoc-con.org

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UPCOMING EVENTS Anthony Lewis

28–31 May 2004
BALTICON 38 (Baltimore area SF conference) at Wyndham Baltimore Inner Harbor Hotel, Baltimore MD. Guest of Honor: Lois McMaster Bujold; Artist Guest of Honor: Dave Seeley; Music Guest of Honor: Heather Alexander; 2003 Compton Crook Award Winner: Patricia Bray. Registration: $42 until 28 February 2004, $47 until 30 April 2004, $52 thereafter. Info: Balticon 38, Box 686, Baltimore MD 21203-0686; (410)JOE-BSFS; balticoninfo@balticon.org; www.balticon.org.

28–31 May 2004
WISCON 28 (Wisconsin area SF conference with feminist orientation) at Concourse Hotel, Madison WI. Guests of Honor: Patricia McKillip, Eleanor Arnason. Registration: $40 until 30 April 2004, $50 at door. Info: WisCon, c/o SF3, Box 1624, Madison WI 53701; (608)233-8850; concom@sf3.org; www.sf3.org/wiscon.

3–6 June 2004
MYTHIC JOURNEYS (Academic SF conference) at Hyatt Regency Hotel, Atlanta GA. Theme: Exploring Story and Ritual in Contemporary Life, Art, Education, and Psychology. Guests: Isabel Allende, Nick Bantock, Charles de Lint, Brian & Wendy Froud, Robert Holdstock, Ellen Kushner, Alan & Virginia Lee, Delia Sherman, Tom Shippey, Charles Vess, Terry Windling, Jane Yolen. Info: john@mythicjourneys.org or mkarlin@mindspring.com; www.mythicjourneys.org.

4–6 June 2004
CONCAROLINAS 2004 (Carolina SF conference) at Marriott Executive Park, Charlotte NC. Artist Guest of Honor: Joe Corroney; Fan Group Special Guest: Albin Johnson. Registration: $25 until 15 May 2004, $35 thereafter. Info: ConCarolinas, Box 9100, Charlotte NC 28299-9100; concarolinas@yahoo.com; http://secfi.org/concarolinas.

4–6 June 2004
DUCKON 13 (Illinois area SF conference) at Ramada Plaza Chicago Northshore, Lincolnwood IL. Guest of Honor: Eric Flint; Artist Guest of Honor: Butch Honeck; Filk Guest of Honor: Steve Macdonald; Fan Guest of Honor: Roxanne Meida King; Special Guest: J.D. Frazer. Registration: $35 until 1 May 2004, $50 thereafter. Info: DucKon 13, Box 4843, Wheaton IL 60189-4843; info@duckon.org; www.duckon.org.

11–13 June 2004
DREAMCON (Florida area multigenre conference) at Adam's Mark, Jacksonville FL. Guests: Larry Niven, Jerry Pournelle, Steven Barnes, Peter David, Tananarive Due. Registration: $30 until 9 February 2004, $35 until 30 April 2004, $40 thereafter. Info: Ronald W. Methvin, (904)910-0518; ron@dreamcon.net; www.dreamcon.net.

Attending a convention? When calling conventions for information, do not call collect and do not call too late in the evening. It is best to include a S.A.S.E. when requesting information; include an International Reply Coupon if the convention is in a different country. ■

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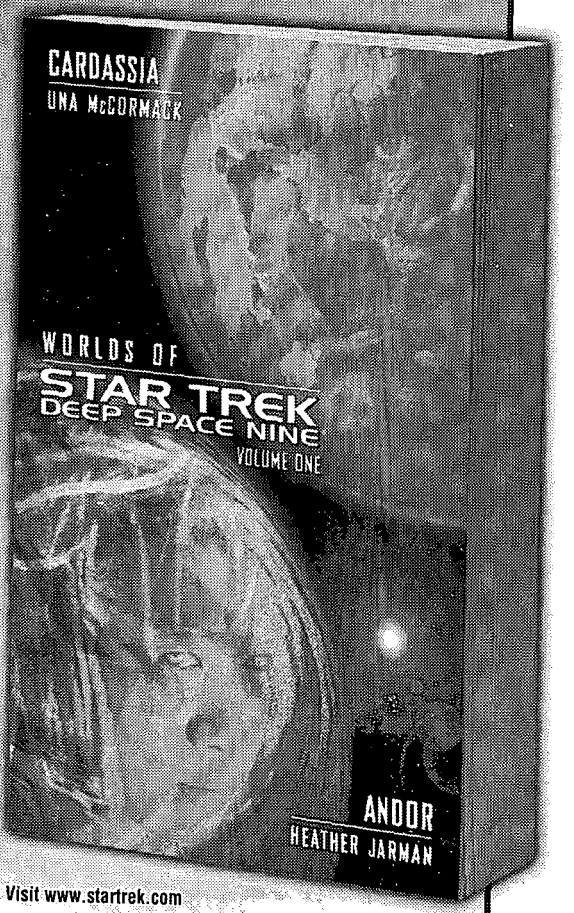

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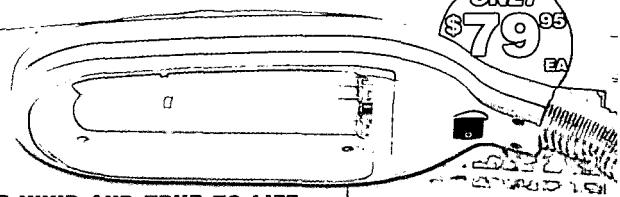

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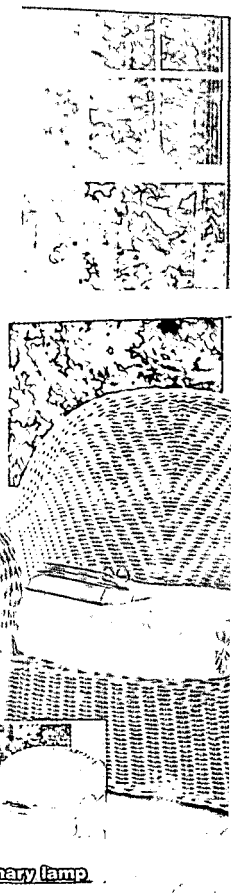

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